PAPER TRADE JOURNAL

OCTOBER 9, 1961

TALKS ABOUT TISSUE . . .

Patrician shows off new tissue mill to Editor, who relates full details in penetrating article

MAGNEFITE EXCLUSIVE . . .

New suphite pulping method shows Wausau the way to higher yields, better pulps at lower costs

"ENGINEERED" ROLLS . . .

How St. Regis pushbuttons 300% more rolls through new system

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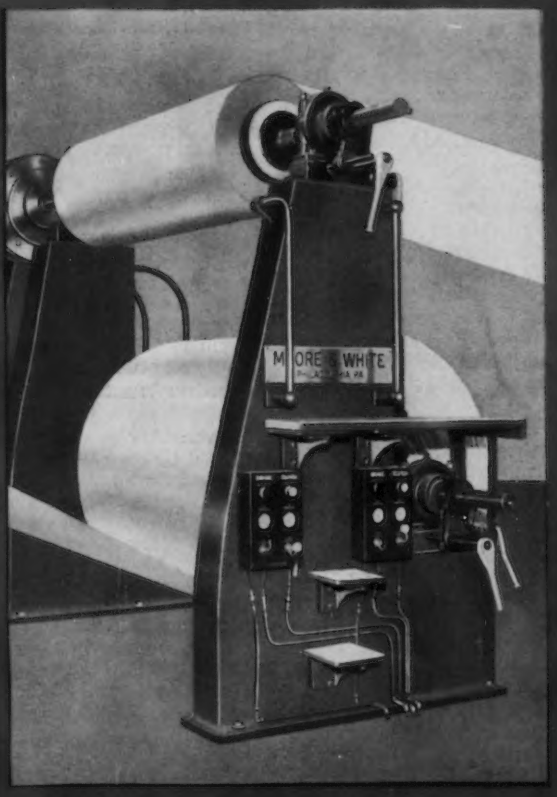

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A Nalco PRODUCT MANAGER Answers Questions About Process Antifoams and Foam Control

Details About a Persistent Problem In Liquid Industrial Processes

In almost every industrial process in which liquids are involved, foam becomes a problem to some extent. Though in some industries foam is only a minor irritation, in others it can seriously hamper production, increase operating costs, and lower product quality. Here are a few commonly asked questions about foam and foam control, answered by J. R. Relick, product manager of Nalco Chemical Company's Process Antifoam Department.

Question: What variables affect foam formation?

Answer: The nature of the liquid and the machinery and/or processes in which the liquid is used. The amount of foam produced is a function of both the liquid and the processes—the more agitation, the more foam. Foam stability is a function solely of the composition of the liquid. The more impurities or stabilizing agents a liquid contains, the more stable the foam is likely to be.

Question: What are the effects of foam?

Answer: In general, foam takes up space which could otherwise be productively occupied, clogs equipment, makes cleaning and maintenance difficult, obscures processes, and decreases flow capacity of piping and equipment. Each industry also has its own individual foam problems. In the paper industry, for example, foam results in poor formation, spotted sheets, and pinholes. In the latex industry, foam slows production and lowers product quality in the manufacture of monomers and in the process of stripping monomers.

Question: How can foam be controlled?

Answer: There are four basic methods:

1. Coalescence—Making little bubbles unite to form big, and therefore easy-to-break, bubbles.
2. Bubble rupture—Using an agent to puncture the bubble film, like sticking a pin in a balloon.
3. Displacement—Replacing the stabilizing agents that "fix" the bubble film with "softening" agents, making bubbles easy-to-break.
4. Film condensation—Adding agents which make bubble film brittle, thus easy-to-break.

Question: What are the characteristics of a good antifoam?

Answer: There are four:

1. It must be able to destroy bubbles in any or all of the four methods mentioned above.
2. Insolubility in the liquid in which it is used.
3. It must be highly dispersible, to spread completely through a system and to prevent overconcentration in any one area.
4. It must be chemically compatible with the system in which it is used, and must be nonreactive in chemical processes involved.

Question: What is the best foam control method?

Answer: That depends on your individual foam problems. Each set of foaming conditions requires a particular antifoam attack. The most efficient method of overall foam control is the establishment of a foam control program, using various combinations of antifoam agents and methods to meet specific sets of conditions.

Question: Is there any *one* antifoam that can solve all my foam problems?

Answer: There might well be—but it usually takes a detailed investigation to determine which one. Most modern industrial processes are so complex that adequate foam control calls for an analysis of each phase of operation by a foam control expert—such as your Nalco Representative—to determine exactly which antifoam, applied in what dosages at what points, will do the best job.

J. R. Relick, Product Manager
Nalco's Process Antifoam Department

Question: What must be considered in establishing such a program?

Answer: Surface tension of the liquid being processed, nature of the process and machinery involved, pH conditions, water hardness, temperature, and surface activity. In many industries these variables change from stage to stage of processing. Therefore, an important part of an antifoam program is the determination of which antifoam to apply at which point.

Question: What does Nalco offer in the way of foam control?

Answer: A complete line of chemicals, each designed for specific applications under specific conditions, and expert technical service to help you plan the most efficient and economical foam control program possible. Nalco chemicals—and the technical service that goes with them—are designed to meet the varied problems of varied industries quickly and economically. For information about what Nalco can do to solve *your* specific foam problems, call your local Nalco Representative. Or, write direct to J. R. Relick, Process Antifoam Department, Nalco Chemical Company, 6216 West 66th Place, Chicago 38, Illinois.

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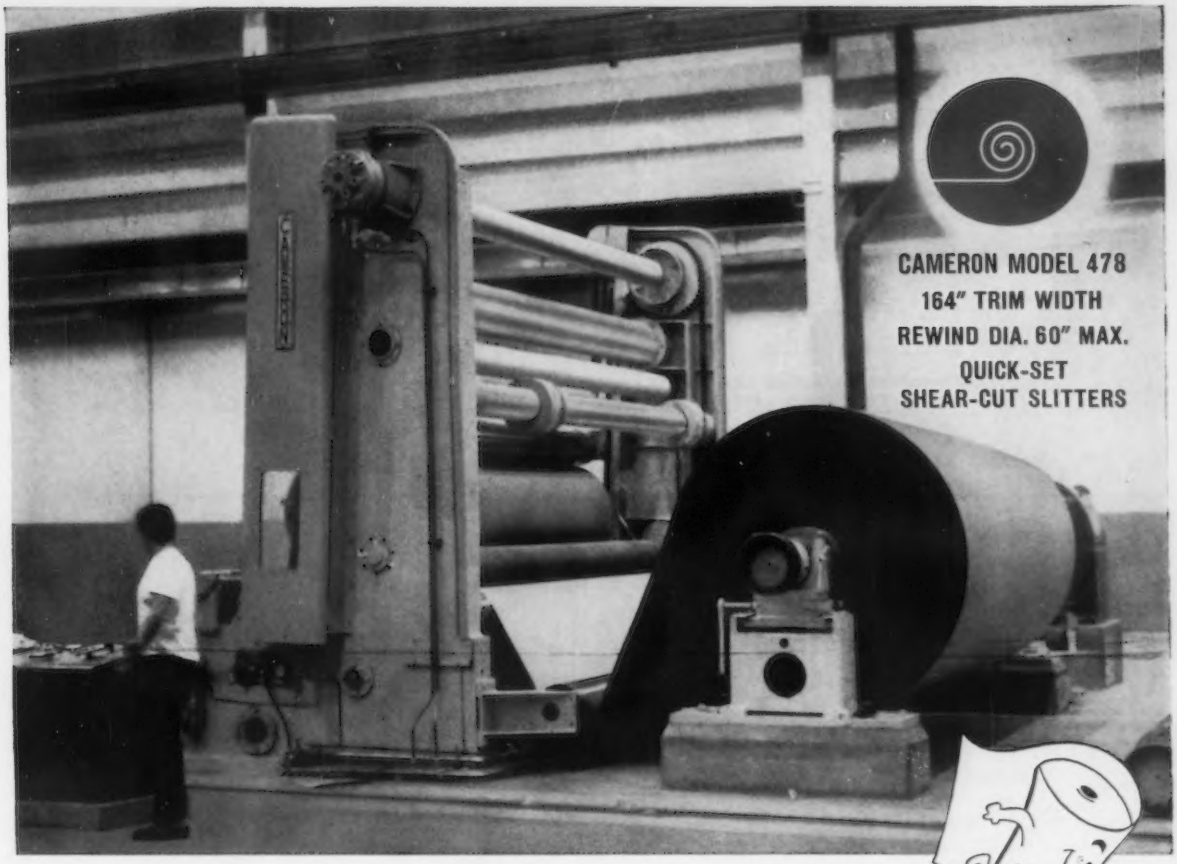

Georgia-Pacific *delivers* the superb running qualities of The New Roll

One good reason why the Georgia-Pacific Paper Company has experienced such rapid growth as a kraft producer for West Coast and export markets is found in the superb running quality of the rolls shipped from the No. 2 machine at the company's Toledo, Oregon mill. Kraft papers and board up to 33 lb. basis weight are delivered in rolls made with extreme care to assure maximum trouble-free yield in high speed printing and converting operations. Also integrated roll control keeps the web *alive* for better end results, not stretched out *dead* in the rolls.

These fine Georgia-Pacific rolls are produced on a Cameron 478 unwinding-slitting-rewinding system, integrated and job-fitted by Cameron specialists for optimum unwind-to-rewind roll control. The heart of this Cameron 478 installation is a regenerative electrical unwind braking system which teams the main winder drive and an unwind braking generator under electronic amplifier controls to provide highly sensitive, continuous response to variations in web tension.

Among other roll control elements of the Cameron 478 are the isolated main drive gear box, down-pressure riding roll brakes, and cam-controlled, tapered automatic counterweighting. All roll control elements are adjustable to the characteristics of the paper or board to be run, the quality of the parent rolls, and the intended service of the finished rolls. The result is a fundamentally different kind of finished roll—a custom-made roll of superb running quality. We call it The New Roll.

Cameron specialists offer a unique test-run service to help you achieve the fine running qualities of The New Roll. In the Cameron Research & Development Service in Dover, N. J., test-runs are being made on all types of papers and board on integrated pilot systems which simulate actual job conditions. Here you can see, before you buy, either an improvement element, such as a new unwind brake and tension system, or a complete, integrated roll production system, engineered to give you The New Roll. Let's plan an early date for *your* test-runs. Write for details.

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AA-392

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PAPER TRADE JOURNAL

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FEATURED THIS WEEK

Pulp Mills Fight Corrosion With Equipment Made of Reinforced Plastics

Charles Angell **19**

Same Equipment, New Pulping Method Greatly Boosts Production for Wausau

This Wisconsin mill found the results far exceeded expectations when it converted from an ammonium-base acid sulphite to a new type sulphite cook. You will see how as you read this exclusive report on the very significant Magnefite operation—Harry Dyer **20**

Pushbuttons Triple Finished Roll Production With Lower Labor Costs

As we promised in our earlier article about the recent expansion at St. Regis' Tacoma Kraft Center, here is the specially prepared and exclusive description of the handling and finishing of rolls from the new linerboard machine, as well as from the existing machine. **26**

Patrician Paper Starts New Mill in South Glens Falls

An on-the-spot unusually detailed description of a new high speed sanitary tissue mill and its converting operations—John C. W. Evans **30**

SUBSCRIPTIONS →

	1 yr.	2 yrs.	3 yrs.
Mills, Converters and Personnel U.S., Canada, Mexico	$5.00	$8.00	$10.00
Companies or persons not manufacturing or converting paper and pulp, U.S., Canada, Mexico	Per year: $7.50		
Latin American Countries	15.00	25.00	30.00
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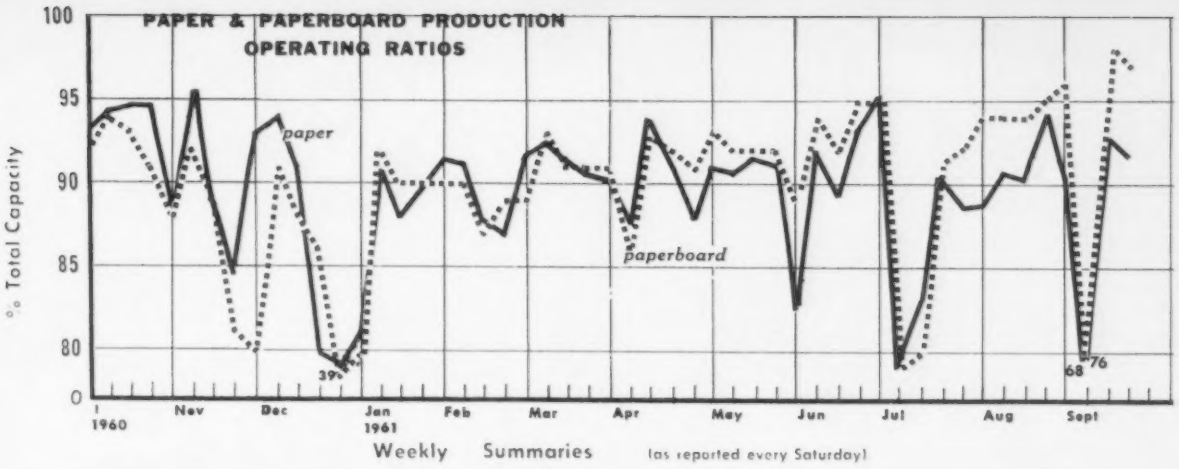

NEWS OF THE WEEK

Governor Orders Probe of Mill Strike . . . Venezuela Firm Becomes Part of Kruger . . . SFI Mill at Snowflake to Start Up Soon . . . Southern Land Holds Open House at Paper Mill Site . . . CGE Proposes to Acquire Dominion Engineering Works .....

Continental Can Co. Announces Managerial Changes . . . Two Bowater Companies Make Executive Changes . . . Titchenal Advances at St. Regis . . . Westminster Promotes Baldwin to Mill Supt. . . . KVP Sutherland Div. Names Manager, Paperboard Sales .....

Gas Burner Delivers High Infra-Red Drying To Web . . . Polyethylene Emulsion Shows Promise in Coating . . . Tapered Plugs for Valves Are Plastic Coated . . . Cuts Defibering Time and Energy Consumption in Half . . . Pipeline Consistency Regulator Self-Cleaning .....

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Paper People *15*

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New Equipment & Supplies *65*

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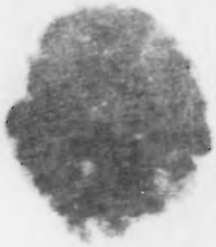
REMEMBER THESE DATES

Plastics Paper Conference, French Lick Sheraton Hotel, French Lick, Ind.	OCTOBER 9-11
Annual Meeting, Fibre Box Assn., Waldorf-Astoria Hotel, New York City, New York	OCTOBER 10-11
Engineering Conference, Shoreham Hotel, Washington, D. C.	OCTOBER 16-19
Fall Convention, National Paper Trade Assn., Conrad Hilton Hotel, Chicago, Ill.	OCTOBER 23-25
Alkaline Pulping Conference, Rice Hotel, Houston, Texas	NOVEMBER 1-3

NEW AIRCO VINOL-BORAX SIZING REDUCES PENETRATION OF OILS AND GREASES

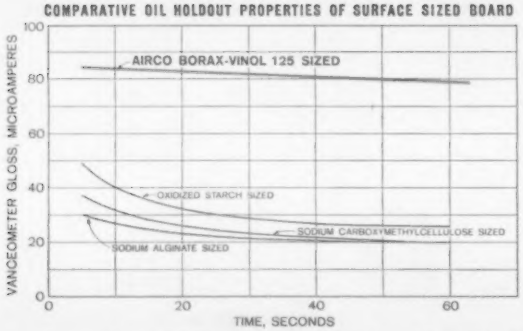


STARCH SIZED SHEET

OIL ABSORPTION TEST
Five drops of NCS-12 oil were dropped from a dropper and allowed to stand for 60 seconds and then photographed from the back. The result shown here tells the story.

VINOL-BORAX SIZED SHEET

COMPARATIVE OIL HOLDOUT PROPERTIES OF SURFACE SIZED BOARD



Vanceometer graph illustrates how Airco Vinol-Borax sizing resists oil penetration in comparison with other sizing agents.

THE new Airco Vinol-Borax sizing process can cut costs as much as 45% in mill operations. Its superior performance, demonstrated in the laboratory test shown above, is amplified in actual use.

Airco Super Hydrolyzed Vinol along with the proper quantity of Borax gives maximum resistance to the penetration of oils and greases on paper and paperboard. Mill run tests have repeatedly demonstrated that Airco polyvinyl alcohol sizing results in smoother surfaces, increased brightness, unmatched printability plus improved mileage of size solutions with less frequent size preparation.

RESULTS IN BETTER INK HOLDOUT AT LOWER COST

VINOL-BORAX SIZED SHEET

A magnified view showing the dot structure of a 110 screen plate as proofed on a Vinol-Borax sized sheet.

Airco sales representatives are backed by Airco's research chemists at Bound Brook, N. J. and Cleveland, Ohio laboratories, a working team ready to help you improve your products and your profit . . . Airco warehouses coast-to-coast are ready to serve you. For further information write: Airco Chemical and Carbide Co., 150 East 42nd St., New York 17, N. Y.

Airco Super Hydrolyzed Vinol is produced by a patented process exclusive with Airco. It is unlike any other polyvinyl alcohol produced in this country. Its 99.7+ hydrolysis percentage results in maximum water resistance. It is tougher and stronger because it has fewer residual bulky acetate groups.

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National Carbide — Calcium Carbide, Pipeline Acetylene

COLTON — Vinyl Resins, Copolymers

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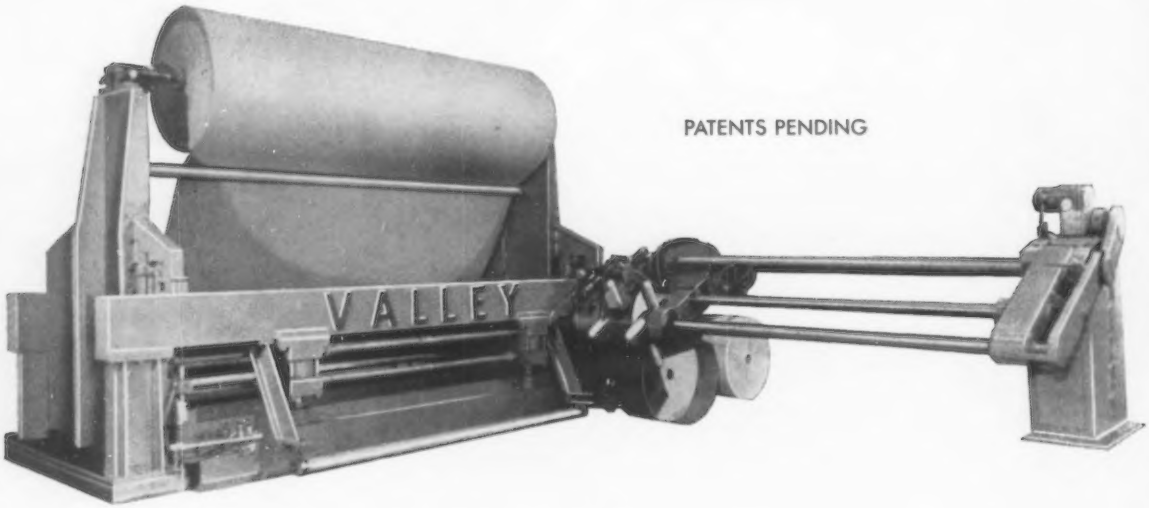

PATENTS PENDING

wraps smoothly . . . faster . . . with minimum supervision . . . in smaller floor area . . . at lower cost

Each phase of automatic time cycle can be individually activated by turning control console selector switch to manual, and pressing individual operation pushbutton mounted on the console board.

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Canadian Representatives:
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A glance at the map is proof that **only Becco supplies Hydrogen Peroxide from so many distribution points.** The practical result is that you can tie up less money in peroxide inventory—without fear of running out. Just make Becco your "warehouse" for H_2O_2 and other peroxygens.

If you buy in drums, you'll get delivery within 24-hours. Bulk shipments, too, are within one-day delivery, if your plant is located in a 500-mile radius of any major Becco distribution point (red dots on the map). But the fact is, whether you are in northernmost Maine or southern-most California—or **anywhere** in between—Becco deliveries are **prompt.**

For the location of your nearest Becco distribution point, write Department PTJ-61-20.

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Trends

September Board Ahead Paper About Even

Paperboard production in September (according to preliminary estimates) ran about 5% ahead of last September, while paper output was close to the same as that month in 1960.

Pulp Imports Continue to Rise

United States imports of woodpulp in July were 7% ahead of July 1960; imports from Canada were up 10% and from Europe were off 10%. For the year to date, the total is +2%, from Canada +7%, and from Europe −31%. The only grade of pulp coming from Europe to show an increase for the first seven months is semi-bleached kraft, up 75%. Largest percentage increase from Canada was shown by unbleached groundwood, up 44%. Only paper grades from Canada not showing an increase for the seven months were unbleached kraft (−31%), bleached groundwood (−4%) and soda (−10%).

Industrial Paper Sales Out Front in August

Industrial paper merchant sales hit a new monthly high in August and were 2.5% over August 1960. Printing paper merchant sales in August were only fractionally (0.1%) ahead of the same month a year ago.

Waste Paper Markets Firm, Prices Moving

Waste paper markets continue active with a few more price increases here and there, such as news up $4 in Chicago and colored tabs up $2.50 in Boston.

Canadian Pulp and Board Still Moving Ahead

Canadian production, domestic use, and exports of wood pulp for August and the first eight months of 1961 were all higher than a year ago. Output for the month was up 5%, compared with August 1960. Domestic use was up 4% in August and exports 3%. For the eight months to the end of August, production this year was up 4%, Canadian consumption rose 1.5% and exports 7% for the period.

U. S. Increasing Share of U. K. Market

Of the six principal suppliers of pulp to the British market, the United States is the only one to substantially improve its position this year. The picture for pulp imports into Great Britain is shown in the table below:

	Jan.-July 1961	Jan.-July 1960
Sweden	545,111 Long Tons	543,011 Long Tons
Norway	302,675	295,526
Finland	288,795	294,077
U.S.	164,966	143,657
Canada	141,458	133,100
U.S.S.R.	39,697	43,244

(Source: "The Paper Maker"—September 1961).

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PAPER TRADE JOURNAL
WEEK OF OCTOBER 9, 1961

Venezuela Firm Becomes Part of Kruger

Envases Orientales C.A., a major tissue converter and paper bag, manufacturer in Venezuela, has become a part of the Kruger Organization, Ltd., Montreal-based management holding company. Envases Orientales, located in Barcelona, state of Anzoategui, in the heart of eastern Venezuela, is now a subsidiary of the Kruger Organization's existing Venezuelan paper company, Papeles Venezolanos C.A. The new subsidiary produces napkins, toweling, paper bags of all sizes and grades as well as folding and set-up boxes.

David Coleman of Papeles Venezolanos has been appointed resident manager of Envases Orientales and has moved to Barcelona to take up his new duties. Donald. A. Nelson, general manager of the Venezuelan division of the Kruger Organization, will supervise operations of Envases Orientales as general manager of the new subsidiary.

The Canadian-owned Kruger Organization has substantially expanded its South American operations during the past year or so. In addition to Papeles Venezolanos and this latest acquisition, the company announced just over a month ago that its new five million dollar paper mill in Colombia is 90 per cent completed and will go into production towards the end of this year.

SFI Mill at Snowflake To Start Up Soon

With start-up of the kraft machine only five weeks away, final stages of the construction of the paper and pulp mill being constructed by Southwest Forest Industries at Snowflake Mills, Ariz., are being accelerated, according to R. E. Baker, executive vice president.

Harvesting and storage of pulpwood has already begun, and carloads of wood chips from the company's sawmills in Flagstaff and McNary are arriving at the mill site daily.

Satisfactory tests have been conducted of the four water wells, which will provide the 8,000,000 gallons a day necessary to operate the mill, and of the 24-inch pipeline which will carry the water from the well field to the plant 10½ miles away.

Southern Land Holds Open House at Paper Mill Site

Southern Land, Timber and Pulp Co. recently held an open house at the site of its new paper mill for the public to make its own inspection.

Actually, there is little to see in the way of construction, since only the administration building and a few minor facilities have been erected. Most of the work has been in grading the site in preparation for construction of the mill.

J. E. Sirrene Co. is doing architectural and engineering work. The administration building is being constructed by Daniels Construction Co. of Greenville, S. C.

Governor Orders Probe Of Mill Strike

The Wisconsin employment relations board was asked by Gov. Nelson to make an immediate investigation of a strike at the Peavey Paper Mills. Mr. Nelson asked for the investigation after officials of the paper plant had asked the governor to intervene in the four-week-old strike because of "extreme violence."

A papermaking machine was damaged when rocks were dumped into it. Other acts of violence have occurred since the strike broke out Aug. 31. Rocks were thrown through the windows of some workers' homes, car tires were slashed and a crane was disabled.

Two unions are on strike against the firm, seeking a union shop. The firm has been operating at about two-thirds capacity with non-striking workers and recruited help.

CGE Proposes Acquire Dominion Engineering Works

Canadian General Electric Co., proposes to buy all the stock of Dominion Engineering Works and make available to DEW holders an eight per cent interest in CGE. The CGE stock Dominion Engineering shareholders get will have a higher dividend than that now paid on CGE common (more than 99 per cent of which is held by General Electric in the U. S.).

The stock will have a vote, will not be subject to compulsory redemption, and will be convertible into common share-for-share if holders find this attractive.

Dominion Engineering Works is Canada's largest producer of paper machines.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending September 23, 1961, at 91.7 per cent, compared with 94.6 per cent, revised, for the preceding week. The ratio was 93.7 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending September 23, 1961, at 97 per cent, compared with 98 per cent for the preceding week and 93 per cent for the corresponding week a year ago.

(Detailed Statistics on page 46)

NPTA 1961 Paper Show for Chicago Reported a 'Sell Out'

The Paper Show, to be held in conjunction with The National Paper Trade Association's 1961 Semi-annual convention, October 22-25, at The Conrad Hilton, Chicago, is a 'sell out,' according to an announcement by Glenn Leach, N.P.T.A.'s executive secretary. He said that 143 exhibitors—a record—have signed to display the latest in paper and paper products in the Show's 16-year history in the Windy City. Of this number, 19 manufacturers or converters are exhibiting for the first time.

The Paper Show will open on Sunday, October 22, at 12 noon and close at 6 p.m. The Show will open on Monday and Tuesday, October 23 and 24, from 12 noon to 6 p.m. and from 9 a.m. to 12 noon on Wednesday, October 25.

On Tuesday, October 24, when the Industrial Paper Division meets, Gardiner Young, vice president in charge of the division, will introduce Hal Baird, president, Hal Baird & Co., New Orleans, who serves as the Association's coordinator of the Sales Training Committee.

Mr. Baird will present a panel and audience participation session titled "Sell — and Succeed!" The panel will consist of C. Alvin Bertel, Jr., Columbia Paper Co., New Orleans; Robert B. Fittin, Inlander-Steindler Paper Co., Chicago; John R. Halkyard, Carter Rice Storrs & Bement, Inc., Boston; and Jack May, Bancroft Paper Co., Monroe. This program, spotlighting the merchant and his need to reevaluate his sales picture, will consist of three phases.

The first part will outline the necessity for the merchant to review his present status as the creator of new markets to sell paper and paper products.

The second will discuss the need for the merchant to analyze and re-examine three of his most important aspects in his operation, namely, his customers, his products and his current services.

The third phase of the program will pinpoint the merchant's use of "salespower" — the selection, the training and the supervision of his present salesmen.

Following each segment of the discussion, the merchants and mill representatives in attendance will be invited to participate with questions and constructive suggestions which will benefit all paper wholesaler-distributors.

Rolland Whiteman, vice president in charge of printing papers, will open the Printing Paper Division meeting, Tuesday afternoon, which will be presented in two parts. The first will feature Robert L. McCormick, Sr., executive vice president, Oklahoma Paper Co., presenting the Imagineering Contest Awards to the 20 prize winners — ten paper merchants and their printer customer-associates — and the next 30 who will receive honorable mention awards. The Imagineering Contest—Round 2, which opened on May 1 and closes on September 30, has attracted close to 200 entries to date (Sept. 22). The top 20 prize-winners will share gifts worth $10,000.

During the second part of the Printing Paper Division meeting, Roy M. Barnes, Jr., sales promotion manager, Organic Chemicals Department, Dyes and Chemicals Division, E. I. du Pont de Nemours & Co., Inc., will present "Color Is The Key," a discussion and slide film presentation pointing out how merchants can sell more colored paper to the graphic arts industry. Mr. Barnes will discuss ways and means colored stock can be used and just where the paper merchant fits into the marketing picture of colored papers.

The N.P.T.A.'s Semi-annual convention will open Monday morning with an Office Procedures "Brass Tacks" Workshop session featuring office equipment, currently utilized by paper merchants, and several automated set-ups will be on display Monday and Tuesday during the four-day meeting. William P. Colgan, N.P.T.A.'s research director, will chair the Workshop.

On Monday afternoon, Charles E. Canfield, president, Canfield Paper Co., New York, will preside over the first meeting of the alumni of the Web Offset Training Institute (held in February and May, 1961) and those who purchased the Web Printing Paper Training Manual. This meeting will review the various aspects of web printing and the use of roll papers.

St. Regis to Present 4,500 Service Awards

Nearly 4,500 employes of St. Regis Paper Co., representing over 55,000 years of service, will receive awards this year in recognition of five or more years of service.

The awards are scheduled for presentation at numerous ceremonies in the mills, plants and offices of all divisions of St. Regis in the United States and abroad. In all, 4,438 persons—or roughly one-seventh of the company's total number of employes—will be honored this year as part of St. Regis's continuing service awards program.

Among those to be honored are 417 employees who reached their 25th year of service this year. This figure illustrates the number of years of experience accumulated by personnel throughout the company.

Correction

The Fraser Companies chlorine dioxide generating plant at Edmundston N. B., was incorrectly described in our August 28 issue as the world's largest. The largest chlorine dioxide generating plant in existence is the Solvay Process unit at the International Paper Co.'s Pine Bluff, Ark., mill with a design capacity of 8 net tons of chlorine dioxide per day.

Mead Dies at His Home In Wisconsin Rapids

George W. Mead, 90, honorary chairman of the board and former president of Consolidated Water Power & Paper Co. died at his home in Wisconsin Rapids, Wis., October 2. Mr. Mead served as company president from 1916 to 1950. He was well known, not only as an industrialist but also as a civic leader and philanthropist.

Mr. Mead gained wide prominence for his efforts in developing to their fullest potential the power resources of the Wisconsin River, often referred to in recent years as "the nation's hardest working river." He was instrumental in establishing Wisconsin Valley Improvement Co. Elected president of the Improvement company in 1935, he served in that capacity for many years. In 1936 the company launched one of its largest projects, the Big Eau Pleine reservoir in Marathon County. With Mr. Mead as its president, Wisconsin River Power Co. was organized in 1947 by Consolidated, Wisconsin Power and Light Co., and Wisconsin Public Service Corp.

Born in Chicago, Mr. Mead attended schools in Oak Park and Rockford, Ill. After one year at Beloit College, he transferred to the University of Wisconsin, receiving his B A. degree in 1894.

PAPER PEOPLE

A. G. Schumaker

C. E. Whitten

Con. Can Announces Managerial Changes

A. G. Schumaker, manager of the Toronto mill of Continental Can Co. of Canada, Ltd., has been appointed manager of production engineering —mill operations.

Mr. Schumaker, who has had wide experience in the paperboard industry in Canada and the U.S., will have staff supervision over product process and equipment developments of the company's three paperboard mills.

Mr. Schumaker is succeeded as manager of the Toronto mill by Charles E. Whitten, plant manufacturing engineer at the company's Dominion mill. Mr. Whitten joined the company in the engineering department at the Dominion mill in 1951.

Two Bowater Companies Make Executive Changes

Executive changes in Bowaters Mersey Paper Co., Ltd., Liverpool, N. S., and Bowater's Newfoundland Pulp and Paper Mills, Ltd., Corner Brook, have been announced.

A. E. Balloch, assistant general manager of Bowater's Newfoundland, becomes general manager of Bowaters Mersey. H. K. Joyce, assistant general manager of Bowaters Mersey, becomes assistant general manager of Bowater's Newfoundland. Both appointments are effective January 1 of next year.

Mr. Balloch, born in England in 1916, went to the Bowater Organization there in 1938 after graduation from Oxford. He was named assistant to the general manager of Bowater's newfoundland in 1952 and assistant general manager in 1956.

Mr. Joyce, born in Toronto in 1921, graduated from Upper Canada College and the University of Western Ontario.

Titchenal Advances At St. Regis

St. Regis Paper Co. announces that O. R. Titchenal has been appointed manager of packaging machinery for the Engineering and Machine Division. Mr. Titchenal will continue to be located at the divisional headquarters in Providence, R. I. He will report to Donald O. Sensenbach, general manager of the Engineering and Machine Division.

In this new position, Mr. Titchenal will be responsible for all of the packaging machinery activity in the Engineering and Machine Division. This activity includes the packaging machinery engineering and development and sales and technical liaison for packaging machinery with other divisions of the company, as well as technical services to the International Division.

Mr. Titchenal has been with St. Regis since 1947 serving in such capacities as sales engineer, engineering manager of western district, and manager of Emeryville Machine Shop. Since 1956, he has been located in Providence, Rhode Island, as chief engineer of the Packaging Equipment Engineering Department.

I. W. Miller has been appointed director of engineering of the Engineering and Machine Division. Mr. Miller will continue to be located at Providence, Rhode Island; and will report to D. O. Sensenbach, general manager of the Engineering and Machine Division.

Westminster Promotes Baldwin to Mill Supt.

Lyle W. Baldwin has been promoted to the position of paper mill superintendent of the Westminster Paper Co. plant at New Westminster, British Columbia.

He joined Scott Paper Co. at Fort Edward in 1950 and transferred to Everett, Wash. as a back tender in 1953.

John A. Carpenter, who has completed his assignment of assisting in the start-up of the new paper machine at the Bowater-Scott Australia Pty., Ltd., plant near Melbourne, will return to Everett to resume his responsibilities of a paper mill shift supervisor.

William Lucas

KVP Sutherland Div. Names Manager, Paperboard Sales

William Lucas has been named manager of paperboard sales for the Sutherland Division of KVP Sutherland Paper Co. and its subsidiary, the Fort Orange Paper Co. An employe of the Sutherland Division since 1946, Mr. Lucas had considerable experience in several departments of the company before assuming his present post.

First employed as an assistant to the industrial engineering department, Mr. Lucas has also worked in the payroll, planning, and purchasing departments.

Marc F. Weil

Patrician Paper Chooses Vice President-Sales

Election of Marc F. Weil as vice president in charge of sales of the Patrician Paper Co., Inc., has been announced.

A veteran of the tissue paper industry, Mr. Weil started with the International Paper Co. in 1932. At that time International owned the mill site in South Glens Falls, recently purchased by Patrician. Patrician is a manufacturer of tissue paper products.

Clampitt Names Gray Executive V-P

Joe H. Gray, a veteran of 14 years with Clampitt Paper Co., has been named executive vice president of the 20-year-old firm.

Mr. Gray first joined Clampitt in 1947 as a trainee, while attending the school of business at Southern Methodist. He became a vice president of the firm in 1950 and in 1956 became vice president and general manager in Dallas, a position he has held since that time.

Hollingsworth & Vose Elects Board Chmn. and President

Hollingsworth & Vose Co., East Walpole, Mass., has elected Aubrey K. Nicholson to the newly created position of chairman of the board of directors to be effective October 15.

Also announced was the election of Mark Hollingsworth as president and chief executive officer also to be effective October 15.

Mr. Nicholson, who has been with the company 38 years, has been president since 1945. He announced his retirement earlier this year to be effective October 15 but in his new position will serve as consultant to the company on a part-time basis.

Mr. Hollingsworth, whose father and grandfather were presidents of the company, graduated from Harvard in 1942 and after serving in the submarine service in the Pacific during World War II joined the company in 1946. After serving in various capacities in the sales and production departments, he was elected vice president in 1953 and executive vice president in March of this year.

Beaudoin Resigns Paper Mill Post to Run Motel

William Beaudoin, superintendent of finishing at the Chemical Fine Paper and Board Division of the Standard Packaging Corp., where he worked for the past 16 years, will resign October 21.

He plans to devote his full time to Ray-Beau Haven, a motel at North Truro, Cape Cod.

J. H. Armistead

Halifax Paper Advances Armistead and Ogden

Promotion of Joe H. Armistead to assistant paper mill superintendent, No. 3 Paper Mill, and of B. S. Ogden to tour foreman, assigned to the No. 3 and No. 4 paper machines, has been announced by Halifax Paper Co., Inc., Roanoke Rapids, N. C.

Mr. Armistead, connected with the paper industry since 1928, has been affiliated with Halifax as a No. 3 and No. 4 paper machine tour foreman since his employment in January 1953. Prior to 1953 he was employed by H & W Paper Co. and several other southern kraft paper companies.

Mr. Ogden transferred to Halifax from its parent company, Albemarle Paper Manufacturing Co., at the startup of the No. 3 paper machine January 1953. During his 20 years service with Albemarle and Halifax, he has progressed through the paper machine ranks to his new position.

John Stevens

Alberta West Appoints Board Chairman

John Stevens, formerly president and chairman of the board of Marathon Corp., has been appointed chairman of the board of Alberta West Newsprint Mills., Ltd., Edmonton. The election of Eli Cowan as a director was also announced.

Mr. Stevens has been associated with the pulp and paper industry in Canada and the United States since 1914 when he joined Kimberly Clark Corp.

He was treasurer of Fox River Paper Co. from 1921 until 1929 when he became vice president of Marathon Corp.

Mr. Stevens took over the presidency of Marathon in 1952 and in 1956 took on the additional post of chairman of the board. In 1957 he left Marathon Corp. to become vice president of the parent company, American Can Co.

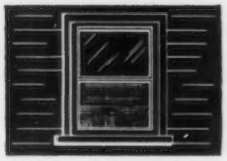
Mr. Cowan is president of E & B Cowan, consulting engineers. His firm has been a private consultant to the paper industry in Canada and abroad since 1945.

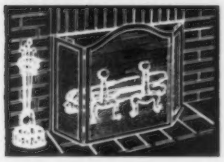
Hall Advances at Crown Zellerbach

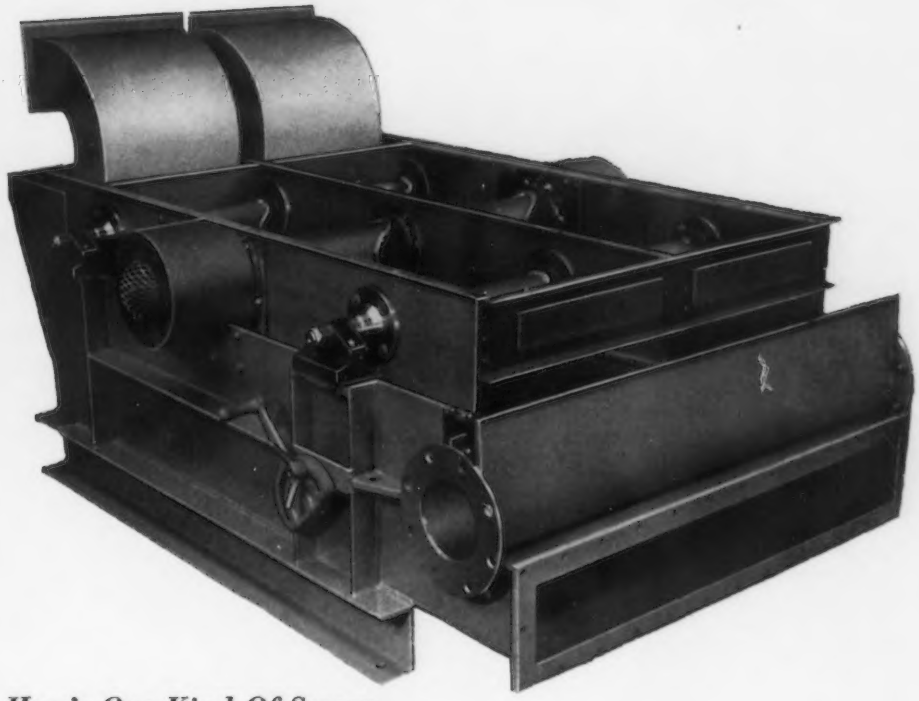
David L. Hall, former personnel administrator for Crown Zellerbach Corp. in Portland has been promoted to assistant general safety supervisor for the company in Portland.

Succeeding Mr. Hall in his former post is Russell M. Ancell, who has been transferred from the company's San Francisco headquarters to take over his new duties in Portland.

Mr. Hall joined Crown Zellerbach in 1948 in the accounting department at the company's Camas, Wash., mill division. He served briefly in the personnel department in the headquarters offices in San Francisco, and in 1955 was assigned to the Portland







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office as personnel and office supervisor. He was later made assistant manager of specialized personnel placement in Portland and in 1960 was promoted to personnel administrator.

Mr. Ancell joined Crown Zellerbach in 1933 as a messenger at the headquarters office. He worked up through various positions in the service department, becoming general supervisor of office services.

Flambeau Paper Adds Engineer To Staff

Alfred Bickel has accepted a position of engineering assistant for The Kansas City Star Co.-Flambeau Paper Division, as of October 1, 1961.

Mr. Bickel is a native of Seymour, Wis., and a 1960 graduate of the University of Wisconsin. He has been employed by Fairbanks, Morse and Co. of Beloit, Wis., for the past year.

Mr. Bickel will do general engineering work throughout the plant and will join the engineering staff headed by S. E. Tomczak, plant engineer, and Robert Thompson, assistant plant engineer, together with Dave Steiner, draftsman.

A. J. Bobkowicz

Gottesman Scholarship to Bobkowicz for Third Year

Andrew J. Bobkowicz has been named the recipient of the 1961-62 D.S. and R.H. Gottesman Foundation Scholarship at the Pulp and Paper Research Institute of Canada and McGill University for the third successive year. The Gottesman Foundation has awarded this scholarship each year since 1942 for the purpose of supporting postgraduate research of interest to the pulp and paper industry. Mr. Bobkowicz will use the funds to continue his final year of study and research for the Ph.D. degree at the Institute.

Under the supervision of Dr. W. H. Gauvin of the Institute's Chemical Engineering Department, he is investigating the turbulent flow characteristics of model fiber suspensions. His work forms part of a larger project on the general subject of fiber behavior in flowing suspensions now being carried on at PPRI.

Mr. Bobkowicz is a 1958 graduate of McGill University in chemical engineering.

Price Elected Bowaters Vice President

The Bowater Paper Co., Inc. of New York, N. Y., announces the election of J. William Price to the position of vice president.

A member of a prominent Canadian papermaking family, Mr. Price was educated in Canada and has spent all of his adult life in the newsprint industry, including three years with Bowater's Newfoundland Pulp and Paper Mills, Ltd., Corner Brook, Newfoundland. He has been a member in a sales capacity with the New York company since 1952 and is well known in the newspaper business.

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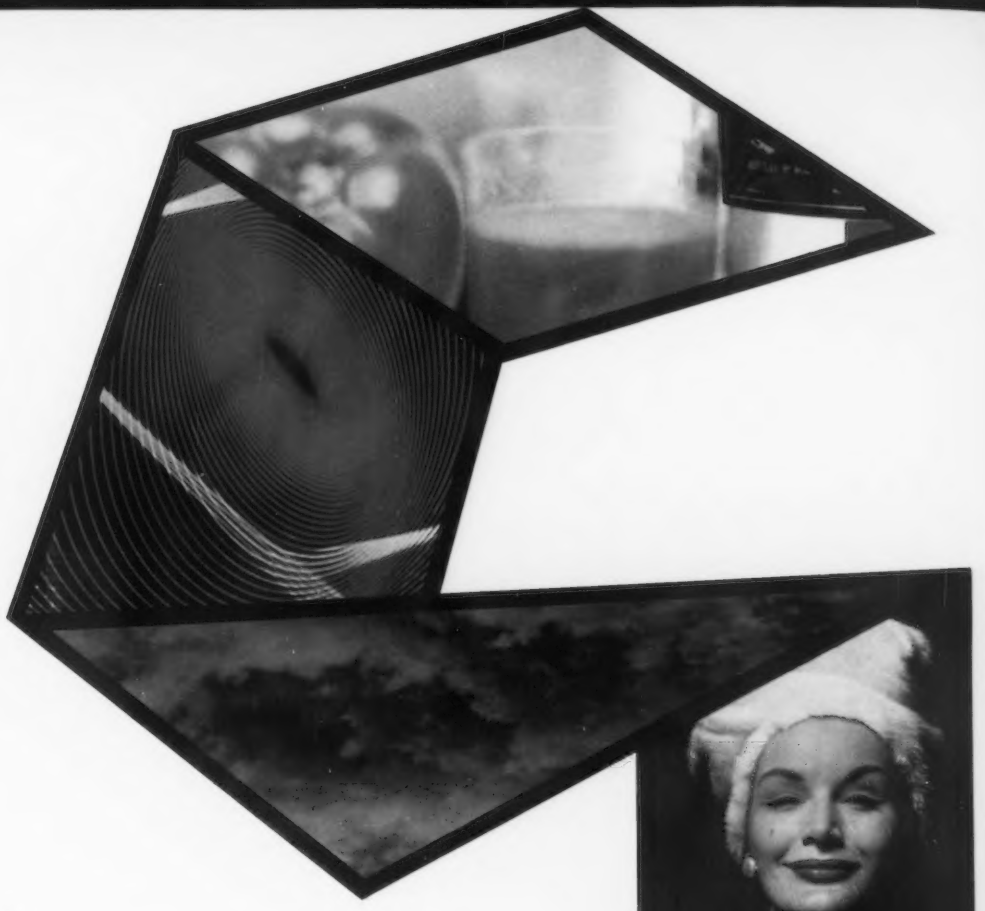

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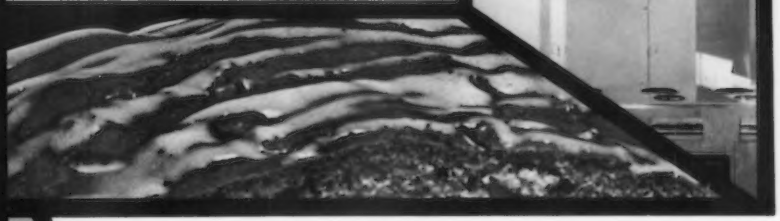

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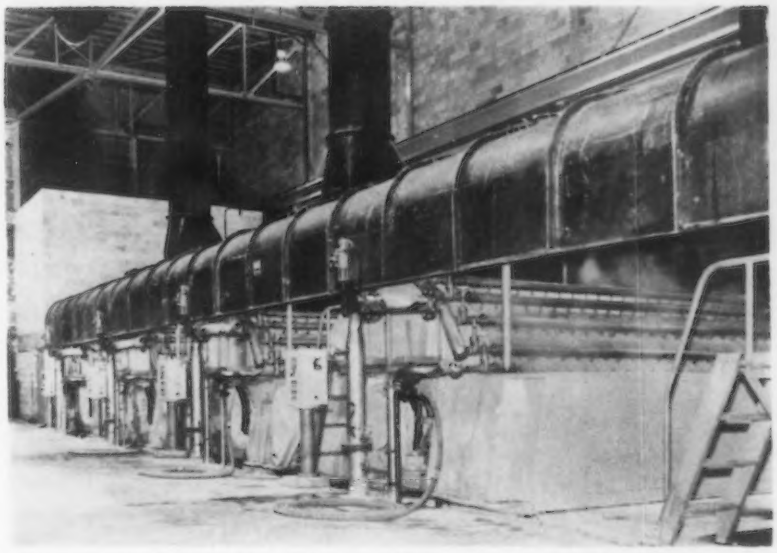
KOPPERS PLASTICS

Fabric and fashion illustrations courtesy of E. I. du Pont de Nemours & Co., Inc.

This insert is printed on Polar Offset Enamel—manufactured by Oxford Paper Company, a prominent user of DYLEX K-54 latex for paper coating.

Pulp Mills Fight Corrosion With Equipment Made of Reinforced Plastics

Charles Angell,
Corite-Reynolds Corp.,
Des Plaines, Ill.



Exhaust system handling fumes from washers in bleach room of Alaska Lumber & Pulp Co. in Sitka is fabricated from glass-reinforced bisphenol.

There has been a great pickup of interest recently in reinforced plastics equipment used in corrosive service. Materials such as the specialty polyesters (bisphenol A, for example) offer effective resistance to many of the corrodents commonly used in the paper industry: acids, alkalies, sulphur dioxide, hypochlorites, salts, many solvents, chlorine dioxide, and bleach solutions.

Equipment may be fabricated from reinforced polyesters into any required shape. These materials need practically no external maintenance and withstand a far wider range of corrosive solutions and fumes than most metals and alloys. Reinforced plastic equipment is light in weight, easy to install, and subjects supporting structural members to a minimum of strain.

Glass-reinforced polyester equipment has been found especially applicable in the bleach plant, where chlorine, chlorine dioxide, and hypochlorite fumes and solutions drastically shorten the service life of even the most expensive alloys. Important uses include hoods, washers and accessories, fans, ducts, piping, vent stacks, exhaust flumes, mixers, and covers for pre-retention units.

The need for equipment offering trouble-free operation and long life is exemplified by installations in two relatively new mills in Alaska, both producing dissolving pulps. Maintenance difficulties and plant shutdown are very serious problems in Alaska, because of the remoteness of the mills from normal replacement and repair facilities.

Bleach Plant Hoods

To preclude such a possibility, Ketchikan Pulp Co. in Ketchikan, Alaska, and Alaska Lumber & Pulp Co. in Sitka have both employed reinforced plastics extensively in corrosive service. Ventilation systems for corrosive fumes at both plants are fabricated from glass-reinforced polyester. Equipment was fabricated by Corite-Reynolds Corp., Des Plaines, Ill., and engineered and sold by J. O. Ross Engineering Division of Midland Ross Corp.

The ventilation systems are installed over the washers in the bleach plants of the pulp mills. Hoods over the tanks are 25 ft. wide and range from 60 to 220 ft. in length. The entire ventilating system — hood, ductwork, fans, and stacks—are all fabricated from glass-reinforced bisphenol A polyester, a material with proven resistance to corrosive agents. The resin, Atlac 382, was supplied by Atlas Chemical Industries, Inc. Wilmington, Del.

Cost of the reinforced polyester fume systems and fans for exhausting the bleach operation was less than that of a stainless steel installation. However, stainless steel has exhibited poor endurance in this application because of the presence of chloride traces in the exhaust. In similar installations, stainless steel has failed completely in three to four years. Service life of the bisphenol A polyester equipment is expected to be practically indefinite, a factor which gives it a great economical advantage in this application.

In use for two years at Sitka and three years at the Ketchikan plant, the polyester equipment has exhibited no sign of deterioration. Stainless steel and Transite angle equipment in the same application for three years at the Ketchikan plant suffered noticeable deterioration.

Polyester Pressure Pipe

The Alaska Lumber & Pulp Co. also employs glass-reinforced polyester process pipe, ranging in sizes from 4 to 72 in. in diameter. This pipe was fabricated and sold directly to the mill by Corite-Reynolds Corp. The piping is used in the acid plant, and operates at low pressures, but at temperatures up to 200° F. It carries sulphur dioxide, with traces of sulphur trioxide and chlorides between the cooling towers and absorption towers.

Normally, this type of pressure pipe is fabricated from Type-316 stainless steel, approximately 3/16th inch thick. In similar installations, stainless steel pipe has lasted for approximately three years, then exhibited a considerable number of corroded areas. Bisphenol A polyester, on the other hand, is expected to yield a minimum life of 10 years.

Same Equipment, New Pulping Method Greatly Boosts Production For Wausau

This Wisconsin mill found the results far exceeded expectations when it converted from an ammonium-base acid sulphite to a new type sulphite cook. You will see how as you read this exclusive report on the very significant Magnefite operation.

Harry Dyer,
Associate Editor,
Paper Trade Journal

Impressive sulphite pulp production increases ranging up to 40 per cent without appreciable capital expenditures or major modifications to existing equipment—this is what resulted when Wausau Paper Mills Co. switched to Magnefite pulping. Average daily production prior to the conversion — using an ammonium acid sulphite cook — was 95 tons of pulp. Now, Wausau averages 125-130 tons per day. This increase in tonnage — without benefit of additional digester capacity — has been effected in a threefold manner:

- Greater number of blows per day due to shorter cooking cycles.
- Higher yield of pulp per cord of wood.
- Better production control allowing more efficient use of digesters.

What is Magnefite? The answer to this question resides primarily in one small but very significant factor; a low free SO_2 content in a magnesium bisulphite cooking liquor. This factor of low free SO_2 content keynotes the major difference between the Magnefite process and a conventional magnesium-base acid sulphite pulp mill. There are several other differences between the two, all attributable to the low free SO_2 content, which will be pointed out throughout this report.

The Magnefite process was first developed at Howard Smith Paper Mills, Ltd., in cooperation with Weyerhaeuser Co. and Babcock & Wilcox Co. These three companies now hold some patent rights and license agreements, primarily in the recovery phase. Wausau's conversion to commercial Magnefite production occurred in January, 1959.

Top of the second stage absorption tower where the Magnefite cooking liquor is brought up to final strength.

Why Magnefite?

There were two basic considerations which dictated Wausau's trial of the Magnefite system:

- It offers the potential of an economically feasible pollution abatement program along with recovery of spent cooking liquor chemicals, since MgO recovery installations are already in proven commercial operation.
- Due to substantial improvements in pulp strength characteristics it permits the increased utilization of a vast supply of local hardwoods, all within 100 miles of the mill, at a much lower cost than imported Canadian spruce pulpwood previously used.

Regarding the former aspect, Wausau emphasizes that Magnefite is actually being run on an extended mill trial, so that chemical recovery has not yet been initiated. Consideration of other sulphite pulping systems that permit recovery—such as the Sivola process or the Stora system—have not been entirely eliminated. But at the present, permanent conversion to Magnefite appears quite favorable to Wausau officials because of its easy conversion, improved pulp yield and strength, and inherent simplicity in chemical and heat recovery.

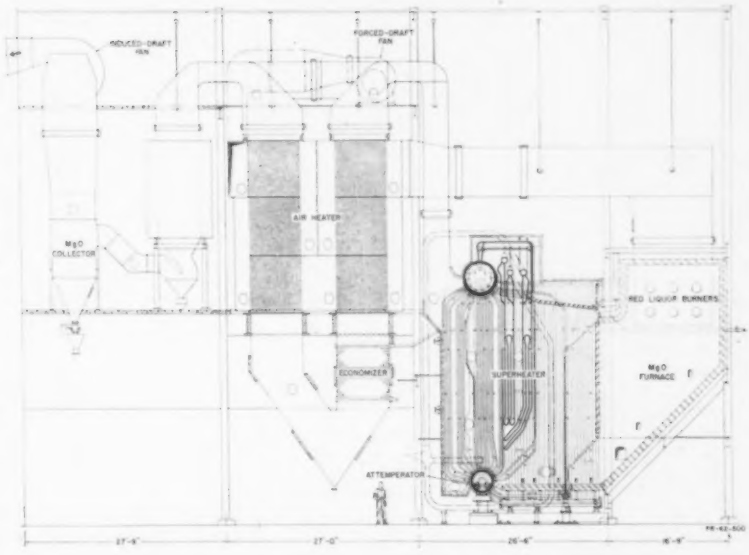
Wausau Paper Mills Co. is a medium-sized but forward-looking mill nestled in Brokaw, Wis. Four paper machines produce a wide variety of printing grade papers — about 235 t.p.d. A new machine has just been started up and paper finishing and warehousing facilities have just undergone a vast modification and ex-

New MgO Mill for Sweden Features Magnefite

Wausau Paper Mills Co. is the first existing sulphite mill in the world to adopt the Magnefite process on a commercial scale for an extended period, The first mill designed specifically for the Magnefite cooking and recovery of chemical is nearing completion in Ivetofta Paris, Sweden, for Hylte Bruks AB. This mill is scheduled to start operation early in 1962 and will feature full recovery of chemical and heat. The Hylte Bruks installation is also the first MgO recovery unit sold outside the United States.

Recovery of Magnefite waste liquors does not differ substantially from conventional MgO liquors. It is in the acid preparation where the divergence occurs, as explained in the Wausau report. However, in an installation designed for Magnefite pulping, it is not necessary to have the pressure accumulators as the acid can be stored at atmospheric pressure prior to use in the digester. Relief gasses released from the digester during cooking are vented to the absorption system before the cooling tower (after cooling in a heat exchanger). This SO_2 recovery technique eliminates the stripping operation at the end of a conventional acid sulphite cook and simplifies the absorption system required for SO_2 recovery.

The Babcock & Wilcox boiler built for the Hylte Bruks installation is designed to process 560,000 lbs. of solids per day from a daily production of 200 metric tons of bleached pulp. The steam generated will amount to 101,500 lbs. daily at 882 p.s.i., 842°F. superheated. The secondary absorption phase of the recovery system will include a Swedish fabricated cooling tower and two venturi SO_2 absorbers and separators. A side elevation view of the recovery boiler designed for the Hylte Bruks mill is shown in the figure.



The savings in chemical cost of Magnefite pulping with full heat and chemical recovery versus calcium base sulphite pulping have been estimated by Babcock & Wilcox Co. to be about $3.30 per ton of pulp. This is calculated on the basis of 90 per cent MgO and 85 per cent sulphur recovery. With Magnefite at a 50 per cent unbleached yield, steam production would be approximately 11,000 lbs. per ton of unbleached pulp. At a steam cost of $0.50 per 1000 lbs., this would have a value of $5.50 per ton of pulp.

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pansion. (See last week's issue of PAPER TRADE JOURNAL for details.)

The people primarily responsible for initiating and operating the Magnefite process at Wausau include:

David B. Smith, president;

Glenn Stevens, executive vice president;

William V. Arvold, vice president—manufacturing;

Robert Howard, technical director;

Ejnar Gisselman, superintendent of pulping;

Will Krueger and Roger Ray, process engineers.

More Hardwood Used

Wisconsin poplar, white birch and Canadian black and white spruce comprise the principal species pulped by the Magnefite process at Wausau. Some pertinent data concerning these species is shown in Table I.

Adoption of Magnefite and other process considerations, Wausau says, now permits use of 85 per cent poplar and only 15 per cent spruce. Normal chip charges are composed of 85 to 90 per cent poplar with 10 to 15 per cent spruce or balsam fir as sweetener. Digester charges occasionally consist of the dense hardwoods: maple, elm, ash, yellow birch. Birch and spruce are cooked separately, but not in great quantities.

TABLE I

CHARACTERISTICS OF WOOD USED IN MAGNEFITE COOKING

Species	Density Lbs./Cu. Ft.	Solid Wood/Cord Cu. Ft., Peeled Basis	Yield Cds./a.d.T. Pulp
Canadian Black Spruce	26	105	1.30-1.35
Canadian Stump-Dried Spruce	25	102	1.55-1.60
Local White Birch	31	92	1.40-1.50
Local Poplar (aspen)	24	92	1.65-1.70

Acid Making

Magnefite's liquor (magnesium bisulphite) is prepared by continuously absorbing sulphur dioxoide gas in a magnesium hydroxide slurry, while carefully and automatically con-

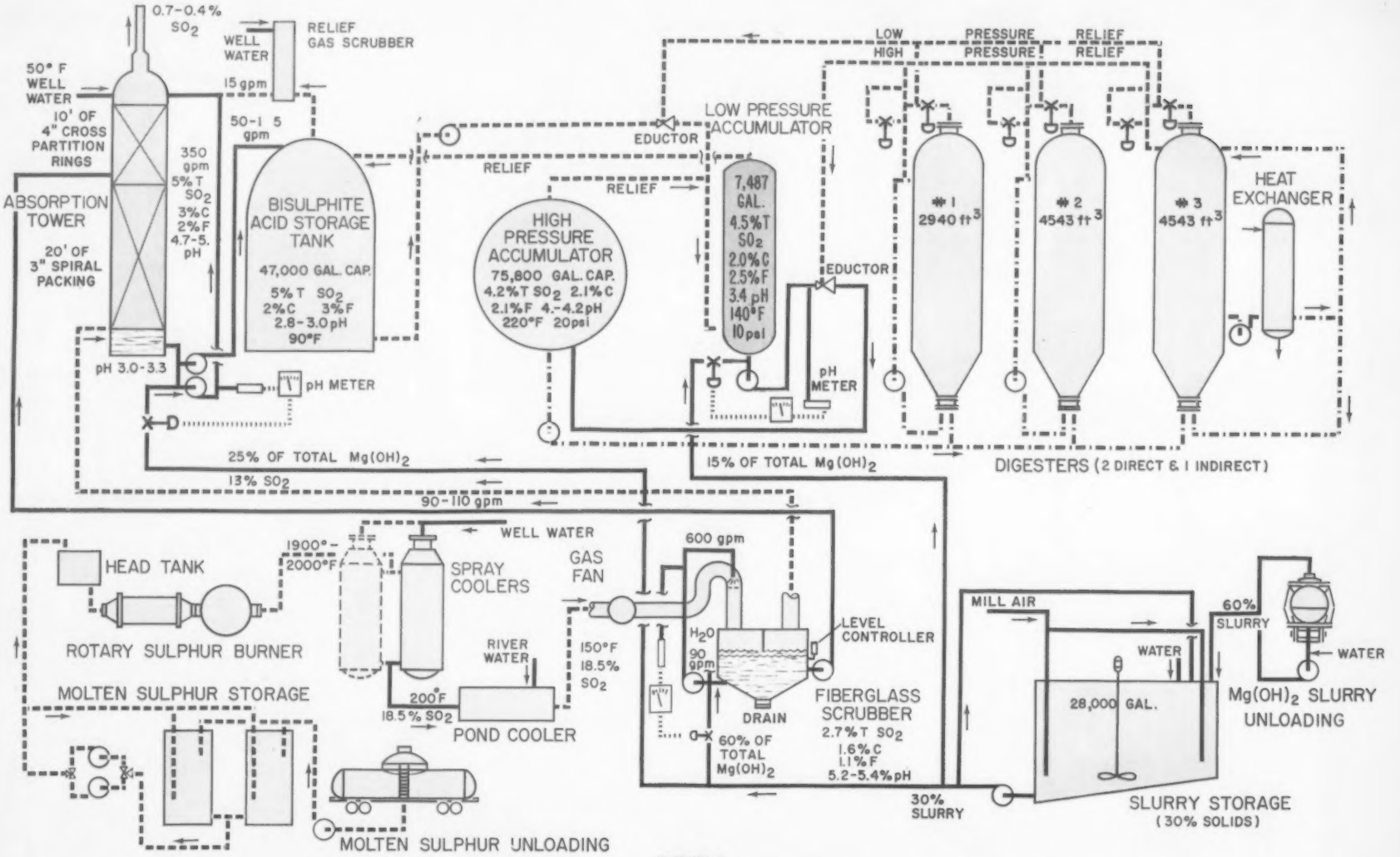


FIGURE 1

Flow Diagram of Acid Preparation and Circulation for Wausau's Magnefite Operation

using same equipment that existed in ammonium acid sulphite pulping with exception of new fiberglass scrubber. Note three pH recorder/controllers and automatic valves that control addition of $Mg(OH)_2$ slurry to acid stream.

Drawn by PAPER TRADE JOURNAL staff artist W. N. Perry.

TABLE II

MAGNEFITE COOKING CONDITIONS
AS COMPARED TO AMMONIUM BASE ACID SULPHITE COOKING

Wood Species	Spruce		Birch		Poplar	
Chemical Base	MgO	NH_3	MgO	NH_3	MgO	NH_3
Acid Strength						
Total SO_2 (%)	4.34	6.58	4.47	6.60	4.42	6.13
Combined SO_2 (%)	2.19	0.94	2.24	0.96	2.22	0.95
Free SO_2 (%)	2.15	5.64	2.23	5.64	2.20	5.18
pH	4.10	1.05	4.03	1.05	4.00	1.05
Cords per Charge	19.3	17.6	18.2	20	22.5	21.9
Liquor: Wood Ratio	5/1	5/1	5/1	5/1	5/1	5/1
Filling Time (hrs.)	1:30	1:30	1:30	1:30	1:30	1:30
Time from Cover to Blow	5:15	6:00	5:30	6:30	5:00	6:00
Time to Max. Temp.	3:00	4:00	3:00	4:00	3:00	4:00
Max. Temperature (°C)	165	145	165	145	165	145
Pressure (p.s.i.)	90	90	90	90	90	90
Unbl. Yield Cds./A.D.T.	1.40	1.60	1.50	1.78	1.65	1.75
$KMnO_4$ Number	15.0	8.9	15.0	8.6	15.0	6.8
Brightness, Unbl. (est. GE)*	65-70	55-60	60-65	55-60	60-65	55-60
Tons/Blow	12.2	11.3	13.8	11.4	13.7	11.5

* Estimated—Unbleached brightness is not ordinarily determined.

trolling pH. Figure 1 schematically illustrates the acid-making system at Wausau. Much of the same equipment previously employed for the ammonia base liquor make-up is used for the Magnefite system.

In Magnefite, molten sulphur (at 275° F.) is converted to SO_2 gas in a system composed of a rotary burner and two combustion chambers. The gas is then quenched to 200° F. in a spray tower and cooled to 150° F. through a pond cooler. Sixty per cent magnesium hydroxide slurry is received in 10,000 gal. cap. tank cars shipped from The Dow Chemical Co.'s facilities at Ludington, Mich., and is diluted to a final concentration of 30 per cent solids, by weight. Mild, but constant agitation of the slurry in storage is provided by a Lightnin mixer to keep the solids from settling.

Sixty per cent of the total $Mg(OH)_2$ required in acid making is introduced at the first gas absorption stage. This stage was designed by Babcock & Wilcox especially for Wausau's operation and will be described in greater detail later. Sulphur dioxide gas is transferred from the pond cooler to the scrubber by a 36-inch diameter lead fan. Magnesium hydroxide slurry and water are introduced to the suction side of the scrubber's recirculation pump. The sulphur dioxide gas is absorbed by the slurry at an orifice just prior to entry of the gas line into the scrubber tank. Unabsorbed gas passes into the second absorption stage consisting of a packed absorption tower. Weak acid from the scrubber is also transferred to this second stage.

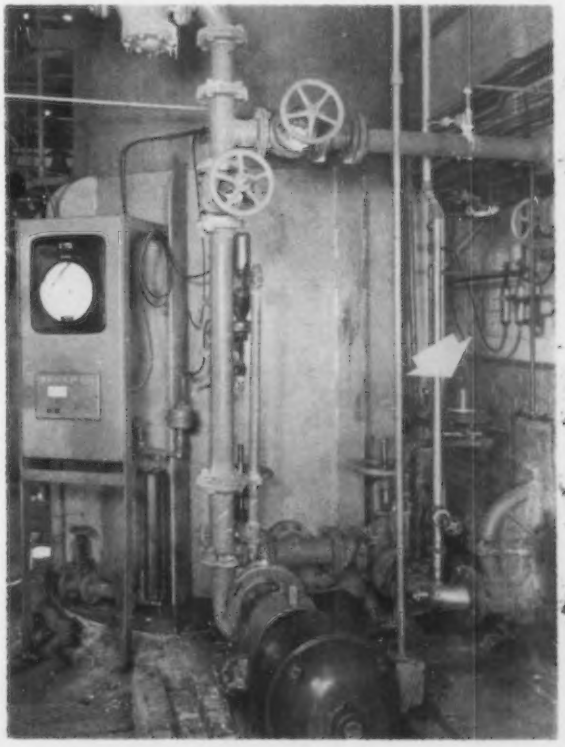
At this tower, another 25 per cent of the total $Mg(OH)_2$ requirement is added to the acid at the recirculation pump. Strong acid from the absorption tower is transferred to an outside storage tank. Acid is then pumped from storage to the low pressure accumulator. Low pressure relief gases from the digesters are vented to the low pressure vessel. As the resulting acid is transferred to the high pressure accumulator, the final 15 per cent of total $Mg(OH)_2$ is added to the suction of the pump. Side relief from the digesters is returned to the high pressure vessel where the final cooking acid is held. The concentrations of the cooking acid at the various stages in the process are noted on the flow chart; final cooking acid conditions are listed in Table II.

As previously noted, pH control is very critical in order to prevent the formation of insoluble and undesirable monosulphite. Wausau uses three pH recorder/controllers operating automatic valves to control the addition of $Mg(OH)_2$ slurry. (See flow chart). Precise control at the absorption tower optimizes the formation of bisulphite acid, and offers tighter pH control at the digester.

Better Acid-Making Control

Carrying a low free SO_2 in the cooking liquor has the added benefit of simplifying the acid-making process in these respects:

- The gas from the burner does not need to be cooled as drastically (about 50-60° F. difference over the ammonia acid sulphite process).
- Since there is very little SO_2 gas to be re-cycled from the digesters, the acid is essentially complete as it leaves the low pressure



Base of the absorption tower showing automatic pH recorder/controller, automatic valve (arrow) controlling magnesium hydroxide slurry addition to the weak acid, and pumping equipment.

accumulator system. Therefore, automatic control of acid making is enhanced. At Wausau, one man is required to operate the acid plant.

• The liquor in the accumulators can be heated by the digester relief gases and stored at atmospheric pressures. Although Wausau does carry some pressure in both vessels, it is to eliminate knocking and vibration caused by high temperature digester relief entering the vessels. They emphasize that, except for this reason, pressures would not be necessary.

The only major new equipment required by the conversion to Magnefite was the first stage scrubber system. Made entirely of fiberglass, the scrubber tank measures approximately six feet in diameter and six feet in height, and has a conical bottom approximately one foot deep. The 18-inch diameter gas ducts from the fan and to the second stage tower were also fabricated from fiberglass to take advantage of its ease of installation and simplicity of maintenance.

In the same 34 months that Wausau has operated on Magnefite, there have not been any abnormal corrosion problems in the pulp mill system. Most of the transfer lines for the acid are stainless steel. The second stage absorption tower, six feet in diameter and 45 feet high, is constructed of mild steel and lined with acid-proof tile. The upper 10 feet in the tower is packed with 4 x 4 inch cross-partition ring. The lower 20 feet is packed with 3 x 3 inch stacked spiral rings. The outside storage tank is concrete with acid-proof brick lining. The accumulators are mild steel lined with brick.

Erosion in pumps, stellite control valves and transfer lines handling $Mg(OH)_2$ slurry was a major concern. Conventional equipment would wear out in a matter of days. PVC transfer lines and cast iron pumps were installed and control valves were replaced by short pieces of rubber hose and pinch clamps. These modifications, coupled with close control over the acid insolubles at Dow's production plant, have minimized the problem.

TABLE III

THREE-STAGE BLEACHING OF MAGNEFITE PULP
AS COMPARED TO SIMILAR BLEACHING OF AMMONIUM BASE ACID SULPHITE PULP

Species	Spruce		Birch		Poplar	
Cooking Base	MgO	NH_3	MgO	NH_3	MgO	NH_3
$KMnO_4$ Number	15.0	8.9	15.0	8.6	15.0	6.8
Chlorine Required: Total (% of a.d. pulp)	7.2	4.2	9.0	5.5	7.9	4.4
Added at C stage (%)	77	79	72	72	81	70
Added at H stage (%)	23	21	28	28	19	30
Chlorination: Time (hrs.)	1:00		1:00		1:00	
Temp. (°F)	35-50		35-50		35-50	
Caustic Extraction: Am't. (%)	2¼	2¼	2½	2½	2½	2½
Time (Hrs.)	2:00	2½-3	2:00	2½-3	2:00	2½-3
Temp. (°F)	120-125		120-125		120-125	
Hypochlorite: Time (Hrs.)	3	3½-4	3	3½-4	3	3½-4
Temp. (°F)	109	110	119	113	109	112
pH	8.5	8.2	7.8	8.6	7.9	8.5
Bleached Brightness	87	87	88	86	88.5	88

Shorter Cooking Times

Wausau has three brick-lined digesters, two employing direct heating

Magnefite sulphite cooking has permitted Wausau to extensively draw on local hardwoods. Here a digester is being charged with poplar chips.

The four engineers of Wausau Paper Mills Co. who developed continuous control of the Magnefite pulping process: (l. to r.) Ejnar Gisselman, pulp mill superintendent; Will Krueger, process engineer; Robert Howard, technical director; Roger Ray, process engineer.

and one employing indirect heating, for a total available capacity of 12,000 cu. ft. No compensation is made in the cooking liquor destined for the indirectly-heated digester. Table II summarizes the cooking conditions for the three principal species in both Magnefite and ammonium-base acid sulphite pulping. Here and in the subsequent tables, the data represent typical operating experience.

Magnefite cooking cycles are shorter for a two-fold reason: (1) Because liquor can be prepared at higher temperatures, cooking temperatures are reached more quickly; and (2) because of the low free SO_2, penetration of the chips can be accelerated without burning the chips. Higher base concentrations and lower chemical to wood ratios also have been effected.

In general, cooking pressures are 90 p.s.i. In some trial runs where the digester pressure was increased to 95 p.s.i. no detrimental effects on the pulp were observed. Side relief is taken at 120° C. to control liquid levels in the digester.

The spent liquor contains 0.3 per cent total SO_2, has a pH of 4.0 to 4.2, and contains about 12 per cent solids. At present, some of the spent liquor is used for road binding purposes.

Screening losses average about 0.5 per cent for all wood species.

Bleaching of the pulp is accomplished in a conventional three-stage system: Chlorination, caustic extraction and calcium hypochlorite. Table III summarizes bleaching conditions for each of the stages. In general, almost 50 per cent more chlorine is required in the first stage to bleach the Magnefite pulps to the comparable brightness of the ammonia acid sulphite pulps. This is attributed to a higher unbleached $KMnO_4$ number.

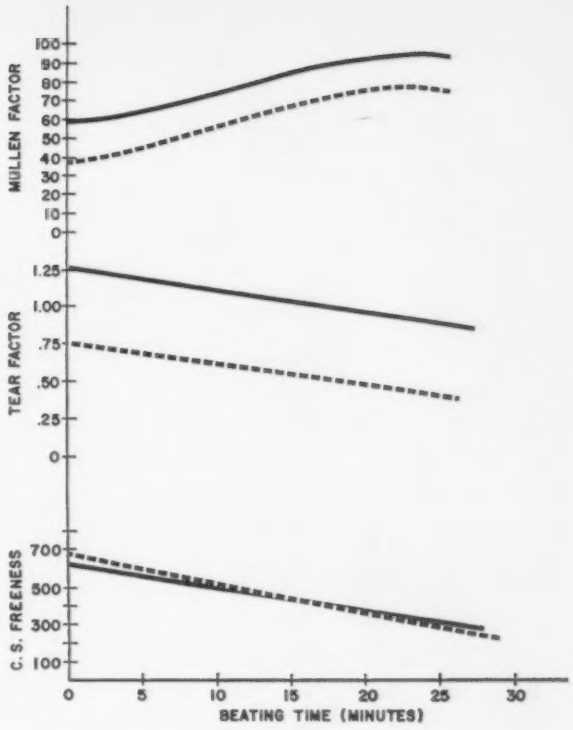


FIGURE II: Magnefite pulps consistently have higher strengths as this representation for poplar pulp shows

Legend:
——— Magnefite
– – – Ammonium Acid Sulphite

TABLE IV

STRENGTH CHARACTERISTICS OF MAGNEFITE PULPS
COMPARED TO AMMONIUM BASE ACID SULPHITE COOKED PULPS

Species	Spruce		Birch		Poplar	
Cooking Base	MgO	NH_2	MgO	NH_2	MgO	NH_2
Beating time to 500 C.s.f.	20	21	17	16	14	9
Mullen Per Cent at 500cc	132	116	98	84	86	54
Tear Factor at 500cc	1.14	.82	1.05	.66	1.06	.63
Schopper Fold** at 500cc	1750	600	690	175	300	40
Bulk* cc/gm	167	154	163	150	162	151
Opacity*	79.7	76.8	76.7	—	79.3	79.8

** Double folds ÷ basis weight

* On Unbeaten pulp

TABLE V

CHEMICALS CONSUMPTION
MAGNEFITE VS. AMMONIUM BASE ACID SULPHITE PULPING & BLEACHING

	Magnefite	Ammonium Base Sulphite
Base Chemical (#/unbl. a.d. ton)	265	94
Sulphur (#/unbl. a.d. T)	265	240
Chlorine (#/bl. T)	150	105
Caustic Soda (#/bl. T)	50	48
Lime (#/bl. T)	37	37
Steam: Cooking (lbs. per ton)	3,100	3,260
Bleaching (lbs. per ton)	1,900	2,200
Other General uses* (lbs./ton)	1,300	2,025
Total Steam	6,300	7,485

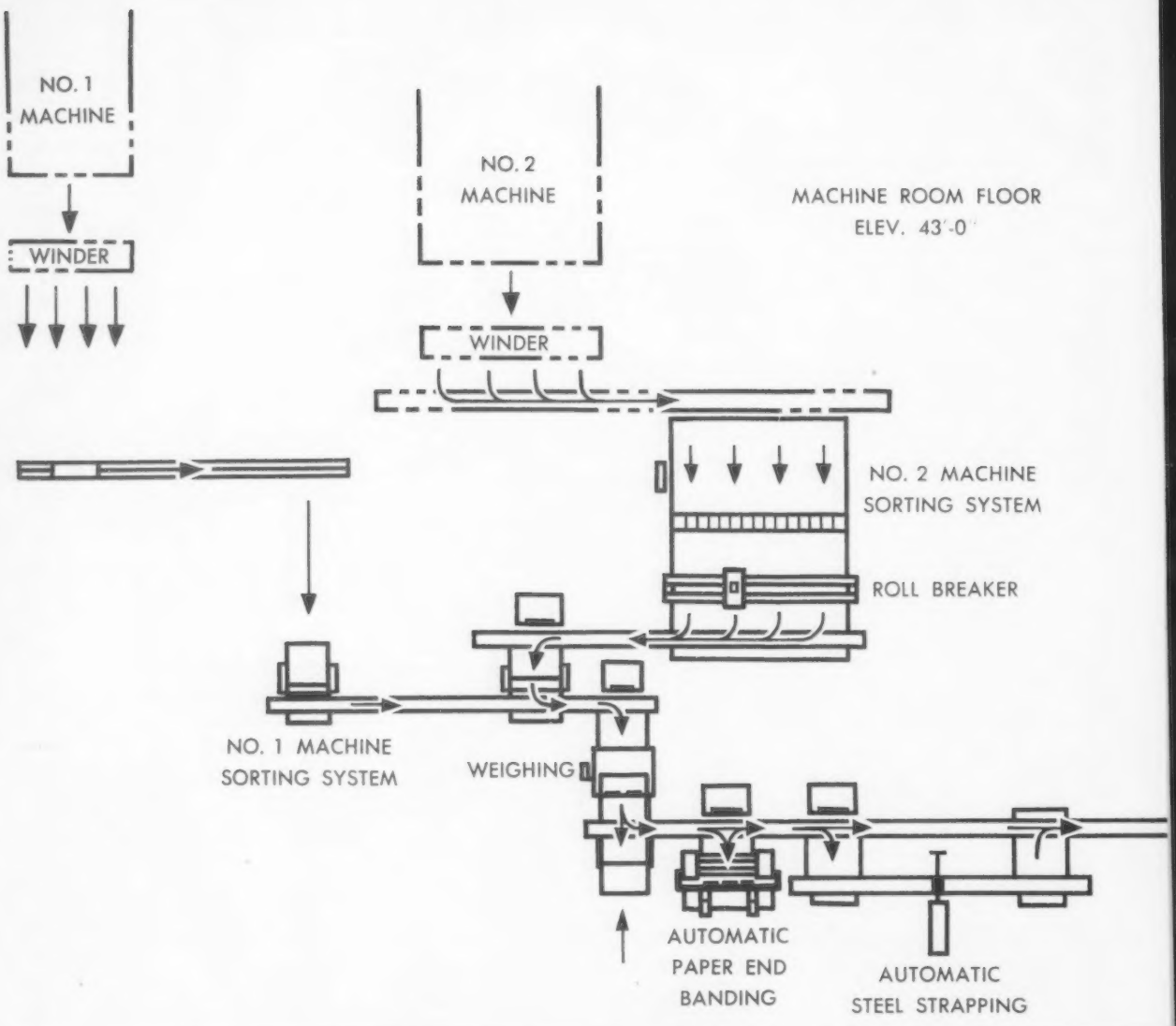
* In acid making, cooking and bleaching only.

More and Stronger Pulp

Other chemical requirements also run slightly higher than in ammonium systems, but the production economies Wausau has experienced with Magnefite including increased yields, plus the substitution of more local hardwoods in the paper furnish, has effected overall savings in the cost of pulp in spite of the increased cost of chemicals.

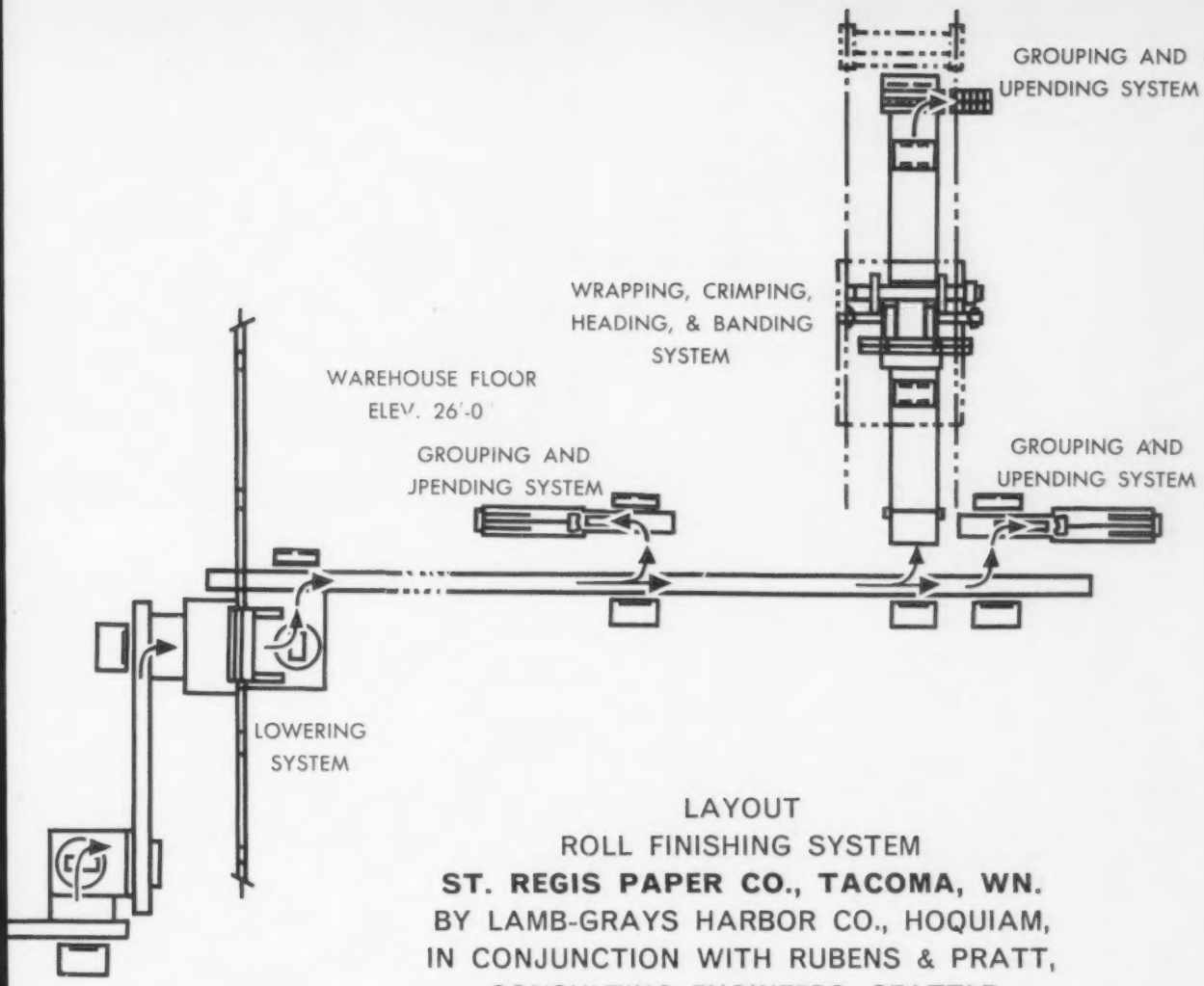
Table V shows the relative consumption of chemicals in both pulping and bleaching. The use of more local hardwoods is permissible because the pulp strength values (See Table IV) are considerably higher for the Magnefite pulp, particularly for the poplar species. (See Figure II).

In addition to the direct production advantages in terms of material availability and general economics, the Magnefite process offers greater control of free SO_2 which can have definite advantages in bettering plant-community relationships.



Pushbuttons Triple Finished Roll Production With Lower Labor Costs

As we promised in our earlier article about the recent expansion at St. Regis' Tacoma Kraft Center, here is the specially prepared and exclusive description of the handling and finishing of rolls from the new linerboard machine, as well as from the existing machine.



LAYOUT
ROLL FINISHING SYSTEM
ST. REGIS PAPER CO., TACOMA, WN.
BY LAMB-GRAYS HARBOR CO., HOQUIAM,
IN CONJUNCTION WITH RUBENS & PRATT,
CONSULTING ENGINEERS, SEATTLE

Recent addition of a second paper machine at St. Regis Paper Company's Tacoma, Wash. mill boosted tonnage by more than three times. (See PAPER TRADE JOURNAL, Aug. 14, 1961 for detailed feature) A new roll handling and finishing system has been installed which makes it possible to process the combined output of the expanded mill with the same shift finishing crew coverage. This is accomplished by almost complete mechanization of roll handling and automation of several packaging operations.

The St. Regis equipment and electrical control system were engineered and built by Lamb-Grays Harbor Co. of Hoquiam, Wash. The system processes the total output of two paper machines producing up to 730 tons of bleached and unbleached pulp paper, and linerboard daily.

The following table of production data indicates the capacities and dimensions for which the system was designed:

	No. 1 Machine	*No. 2 Machine*
Trim Size:	166"	246"
Daily Tonnage (Ave.)	230	500
Roll Sizes:		
Maximum diameter	60"	72"
Minimum diameter	24"	24"
Maximum length	123"	85"
Minimum length	15"	18"
Maximum weight	9800#	9800#
Combined Roll Output Per Hour:	70 plus	

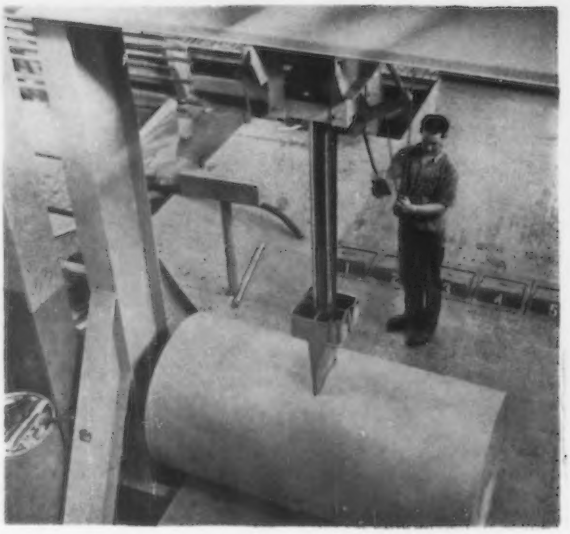
The new finishing and shipping building, provides approximately 12,000 square feet of storage area together with covered rail spurs and rail loading docks on two sides plus two truck loading docks at one end of the storage area. A Langston rewinder suitable for rewinding mill rolls or for the production of counter rolls was provided. The winder has a hydraulic shaftless backstand and can handle mill rolls up to 60 inches in diameter and 98 inches wide. It is equipped with a Reliance variable speed d.c. drive. A Revolvator lowering table is available for use when rewinding mill rolls and which retracts flush with the floor when making counter rolls. There is

a portable counter roll stripper by Lamb-Grays Harbor.

Maximum Flexibility Needed

A wide range of customer packaging requirements, different roll sizes, various internal warehouse destinations and carloading points dictated the need for maximum operationing flexibility. For example, rolls destined for bag conversion bypass the packaging operation entirely and are diverted to storage. Others are routed separately through paper banding, steel end-strapping, wrapping, and ultimate deposit at one of three pick-up stations.

The routes of individual rolls are preselected and controlled at two primary pushbutton stations—one operated by the scaleman and the other by the warehouse dispatcher.



Roll breaker minimizes damage to rolls interleaved at slitter-rewinder. Badly interleaved rolls are returned to broke beater or converted to smaller shipping or counter rolls.

Two Control Stations

The first control station is equipped with an electrical relay indexing count system. The scaleman can program individual rolls for: (1) discharge to bag storage, (2) paper banding, (3) steel end-strapping, or (4) routing to warehouse and wrapping section. When desired, even the largest rolls can be re-introduced into the system via the bag storage lowerator-elevator.

The second control station, located in the lower level warehouse, permits the dispatcher to direct individual rolls to: (1) one of two stacking upenders, (2) the wrapping line, or (3) the wrapping line bypass. A magnetic memory system controls the route of rolls from this station, making discharge automatic when the rolls reaches its designated position. The stacking feature of the upenders enables clamp lift trucks to carry multiple roll loads, thus saving time, labor, traffic, and the wear and tear of extra mileage on the lift trucks.

In tracing roll flow through the system (see flow chart), starting at the new No. 2 machine, a set of rolls is first pushed off the shaft puller at the new Beloit winder and moves down an inclined sorting deck, coming to rest against roll stops. The sorting deck accommodates two sets of 72-inch diameter rolls, plus clearance for one set on the puller.

The remote-operated roll stops permit one roll at a time to pass to a level deck for stenciling and plugging. At this point, interleaved rolls can be separated with an overhead hydraulic roll breaker. Rolls are next pushed on to the No. 2 sorting conveyor, carried to the No. 2 discharge arm elevator which transfers the rolls to the No. 1 sorting conveyor. Another arm elevator is used near this point to introduce these rolls to the scale conveyor. Rolls from the No. 1 machine winder are brought to the conveyor system on a shuttle cart running on a track imbedded in such a way that there is no obstruction on the floor.

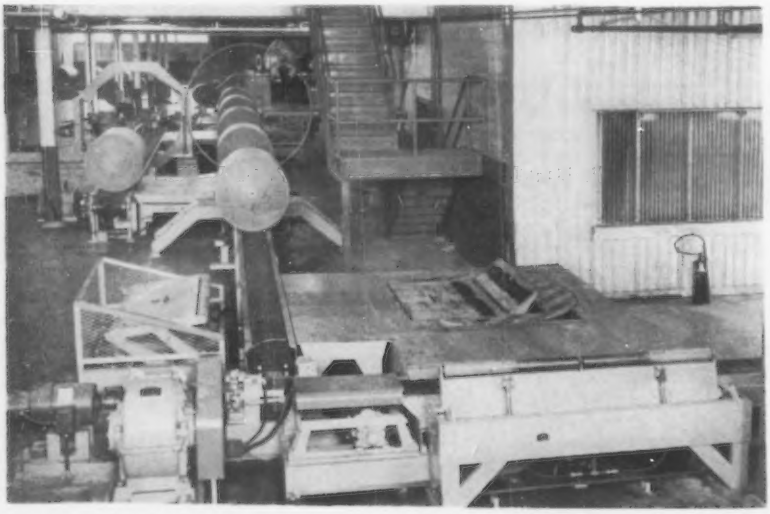
Throughout the system, roll kickers are used to move rolls on and off the conveyors as at the scale, end banding or strapping stations, etc. All of these operations are automatically initiated and coordinated with the operation of adjacent equipment.

A Toledo scale with print-out equipment and having a capacity of 12,500 pounds is provided. The scale operator brings the rolls to the scale from the scale conveyor by means of a manually controlled, air operated kicker.

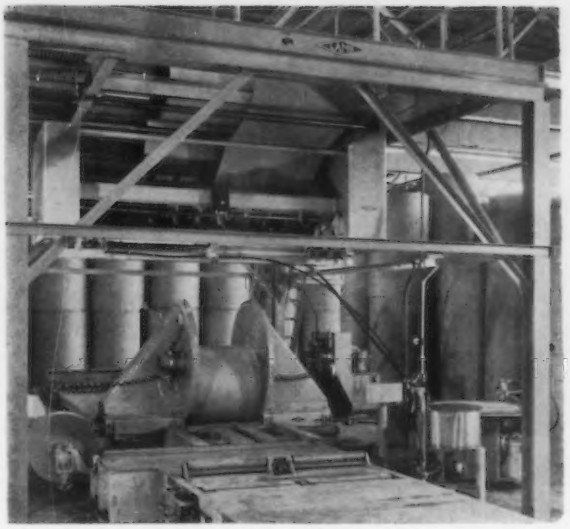
After weighing, the scaleman selects one of four possible routes for individual rolls. If it is destined for bag storage, the bumper at the end of the scale platform is lowered, the arm lowerator raised, and the roll lowered to floor level for storage pick-up.

If any of the other three selections are made, the bumper remains up and the roll is centered on the scale discharge conveyor which is equipped with automatic sequential controls for proper spacing of rolls through the system.

The first index point is opposite the paper end banding unit. If this operation has been selected, a kicker moves the roll into the banding unit.



Paper end banding and steel strapping line with roll bumper and 90° turntable in foreground which delivers rolls into conveyors to lowerator.



Heart of roll wrapping system consisting of overhead wrapper backstand, wrapping rolls, end bander, head gluer and roll header. Automatic crimping device will be added shortly.

Independently-operated banders move toward each end of the roll which begins to rotate when they are in position. The roll is discharged back on to the scale discharge conveyor when the proper number of turns have been made.

The second index point is opposite the steel end-strapping section. Here, a kicker moves the roll on to the strapping conveyor which positions the roll first for strapping one end, then the other. A tilt discharge releases strapped rolls back to the scale discharge conveyor when this conveyor is clear.

The scale and roll delivery point to the pre-existing multi-wall bag plant are on the level of the machine winders. The storage area and part of the finishing equipment is located at car loading level in the new finishing and storage building. The orientation of the new building with respect to previously existing buildings made it necessary to use two conveyors, and an automatic turntable, together with a Lowerator to convey rolls to the new addition.

Under usual operating conditions, all rolls being conveyed to the warehouse eventually reach the end of the scale discharge conveyor where they are pushed onto a turntable, rotated 90°, pushed on to the lowerator conveyor, transferred to the lowerator, and taken down to the warehouse level where they are rotated back 90° and pushed on to the warehouse conveyor.

At this point, the warehouse dispatcher determines the station to which each roll will be sent—No. 1 upender, finishing line, or No. 2 upender. The upenders operate identically and automatically—accumulating, upending, discharging to the pick-up section, and returning to their horizontal accumulation position.

The finishing line, located at right angles to the warehouse conveyor, accepts rolls on an arm elevator which raises them to an inclined storage ramp. Rolls move down this ramp to an automatic roll feeder which holds them until the finishing operator is ready to release one into the wrapping section.

Wrapping rolls rotate the paper roll during the wrapping and crimping operations. Selection can be made by pushbutton from five different widths of wrapper mounted in the overhead wrapper backstand. Cutoff of the body wrapper is pushbutton actuated and followed by automatic gluing of the trailing edge.

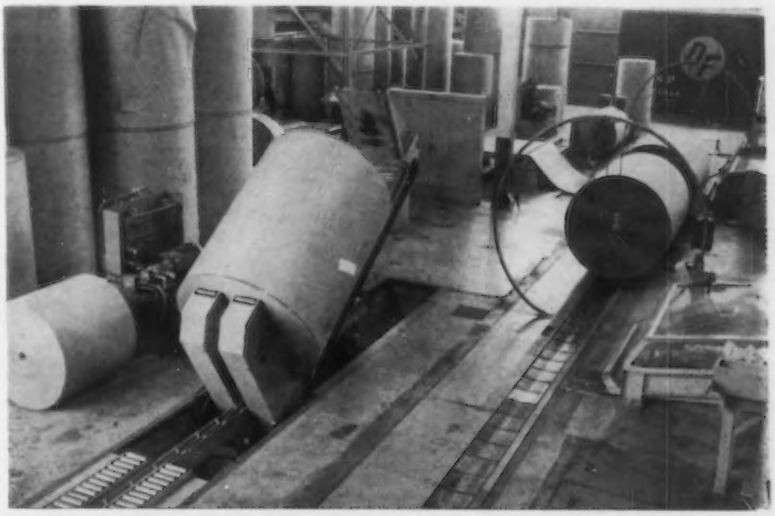
Extension bands, housed in movable carts are attached in a similar manner. Inside heads are inserted and the body wrap and extension bands are crimped over both ends of the roll. The roll moves on to the header where automatically glued heads are applied and the heading cycle completed. Final step is discharge to the finishing line upender.

A Lamb roll crimper installation is now being engineered. This unit will eliminate the heavy labor of hand crimping in addition to providing a neat appearing, consistently high quality package.

The system is designed for handling rolls up to 10,000 pounds and 72-inch diameter, with the exception of the wrapping line which will handle rolls up to 60-inch diameter and 96-inch width. Finished rolls are trucked from the three upenders or from the warehouse floor by means of lift trucks equipped with grabs, to rail cars, highway trucks, or to the storage area.

The St. Regis system employs many of the refinements that are available in modern roll handling and finishing equipment and is an excellent example of how this long-neglected area of paper manufacture can benefit from a well-engineered systems application.

Automatic roll finishing systems are fast becoming a standard inclusion in new mill planning and to an ever-increasing extent in the remodeling of established mills. When the product can be improved and production increased by as much as 300 per cent without incurring extra labor costs, the reasons "why" are very apparent.



One of several upending components located on warehouse level for discharging finished rolls to storage. Rolls for wrapping are raised by arm elevator, upper right.

Patrician Paper Starts New Mill in South Glens Falls

An on-the-spot unusually detailed description of a new high speed sanitary tissue mill and its converting operations.

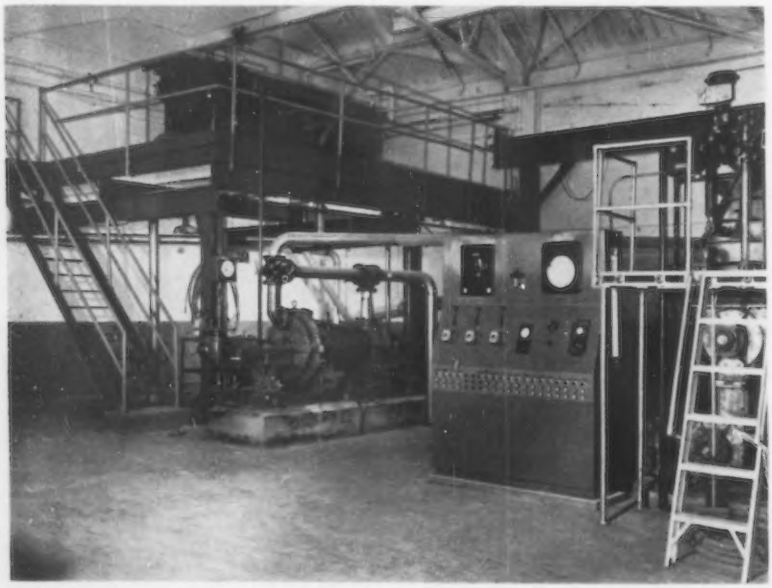
John C. W. Evans,
Editor,
Paper Trade Journal

The new tissue mill of Patrician Paper Co. at South Glens Falls, N. Y. began operation early this month. The mill is unique in that this is the first new tissue mill to be built in the country by a new company for many years.

Although there have been many new mills built to make sanitary tissues since the war, they were built for companies already in this field. Another interesting facet is the wide open attitude of the management to their mill. The editor spent two days in the area and could find no secrets about this modern high speed operation. The mill was placed in production in a remarkably short time, since the company was formed almost exactly a year ago with engineering beginning shortly thereafter.

The company is headed by Edward B. Mallory, president. Mr. Mallory has had twenty-five years experience in the facial tissue business and was formerly vice president of Angel Soft Tissue Mills, Inc. Other company executives are William H. Holl, vice president manufacturing; Marc F. Weil, vice president sales; and Charles Schneck, secretary-treasurer.

The company plans to produce only premium grades of facial tissue. In the interest of quality and efficiency in this one machine mill, both toilet and facial grades will be cut from identical stock. The nominal capacity of the mill is 40 tons of tissue per 24 hours. Products will be sold under the trade name of Patrician.



BEHIND THE HEADBOX—Jordan at left, save-all above.

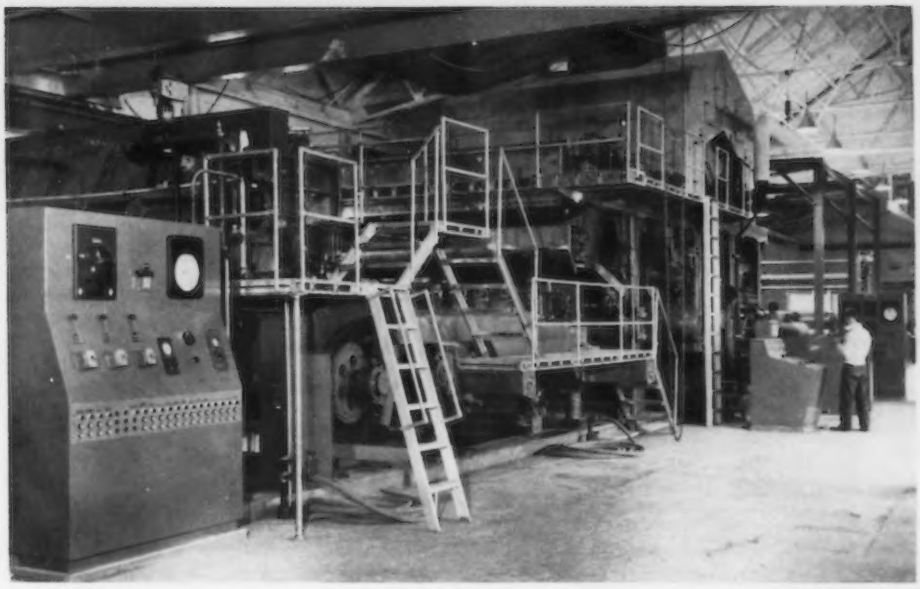
Interesting Mill Site

The mill is located in a large building which was purchased from Scott Paper Co. This was the site of the Marinette Paper Co. tissue mill but at the time of the purchase all equipment had been removed and the building used only as a warehouse. Prior to Marinette the building belonged to International Paper Co. and it is believed that the first roll of facial tissue ever made in this country was produced here by IP's former Veldown division.

Consulting engineers for the project were Alvin H. Johnson Co. and Sandy Hill Iron and Brass Works was the principal equipment supplier.

Stock Preparation

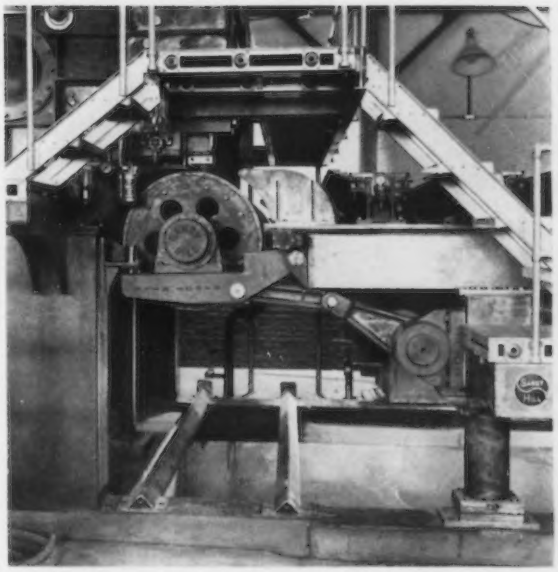
Pulp bales consisting only of Canadian and Scandinavian high brightness bleached sulphite are pre-loaded on a Gifford and Wood conveyor system for checking of the furnish. The



WET END VIEW—Breast roll in lowered position ready for a wire change.

conveyor is then started and delivers the pulp bales to a 3,500 pound Liebeck pulper. The slushed pulp at four to five per cent consistency is pumped to a 6,000 pound capacity dump chest. From the dump chest the stock is pumped through a Claflin refiner to a machine chest. Leaving the machine chest, consistency is controlled by a Trimbey consistency regulator and the stock passes through a Noble and Wood jordan to a Bird Centriscreen and then to the fan pump. All stock and white water pumps were supplied by Gould.

A decker type save-all is used on paper machine white water prior to its re-use.



BREAST ROLL CLOSE-UP—Wire covered honeycomb construction open breast roll.

Paper Machine Wet End

Fan pump feed to the paper machine headbox is regulated by a DeZurik V-port valve with remote controls, to a multiple manifold inlet. An explosion chamber with a distributor roll on the discharge side delivers the stock from the manifold to the throat of the pressurized headbox.

The air pressurized headbox features a patented Sandy Hill pressure control which uses Mason Neilan equipment. The headbox is fabricated entirely from stainless steel and has two distributor rolls operated by hydraulic motors. The flexible lip slice which is adjustable, both vertically and horizontally, extends out over the breast roll. The headbox is equipped with viewing ports on both sides and is illuminated internally. There is a Broughton rotating shower inside the headbox. The 30 inch diameter open type breast roll is wire covered and is of honeycomb fabrication giving 90 per cent open area. The short fourdrinier has five adjustable wire contact type deflectors with Ryertex lips followed by two sixteen-inch diameter Sinclair dandy type table rolls. There are two stainless steel suction boxes with maple covers. Provision has been made for the addition of a third box. The suction boxes are equipped with Clark and Vicario individual separators.

The fourdrinier is of the cantilever type and is designed for a 147 inch by 50 foot wire. There is a Gilbert and Nash mechanical wire guide with a 13¼ inch diameter rubber covered guide roll located after the suction boxes. The couch is a 30 inch diameter plain bronze shell. There are three Broughton showers on the return wire. A manually operated wire stretch is provided.

The fourdrinier and parts, except as noted are fabricated from, or covered with, stainless steel. The breast roll is lowered hydraulically during a wire change and the two supporting stands are removed from the tending side of the machine. At the couch roll, clearance is provided by pneumatically raising the top roll. The new wire is draped on the wire buggy in the tending aisle and then

rolled into position on stainless steel tracks.

The machine is equipped with a plain pick-up, the felt carrying the sheet through the suction press to the Yankee dryer. The pick-up felt is equipped with a Gilbert and Nash air guide, motor operated stretcher, a pair of 20 inch diameter pneumatically loaded wringer rolls and a Scofield felt conditioning system.

The press frames are of box section steel fabrication. The single press is equipped with a 30 inch diameter Manchester suction press roll with a 26 inch diameter pneumatically loaded rubber covered top roll. The press felt is equipped with a guide, wringer rolls and conditioning system similar to those on the pick-up felt.

Dryer, Calender and Reel

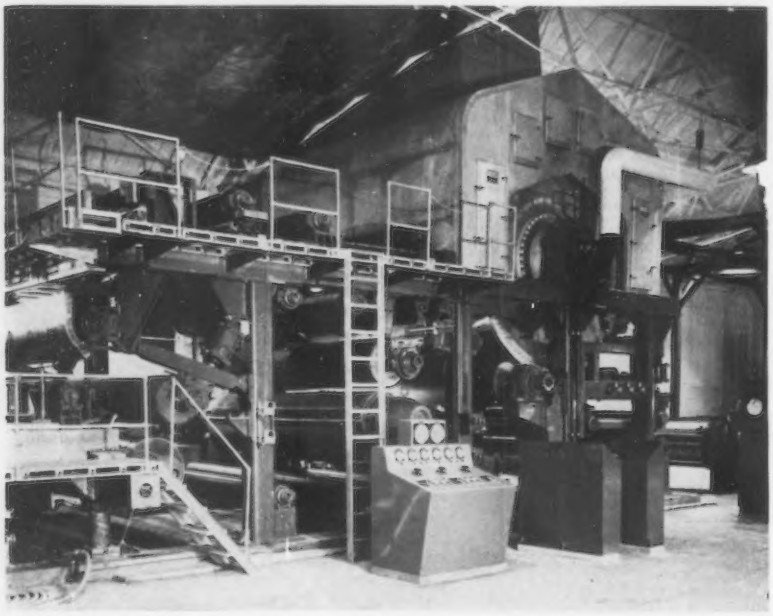
There is a twelve foot diameter Yankee dryer equipped with anti-friction bearings. The pressure roll is 26 inches in diameter, rubber covered with a drilled face and is pneumatically loaded. The Yankee dryer is equipped with a cut-off doctor, a creping doctor and a cleaning doctor, all by Lodding, as are all other doctors throughout the machine.

The Yankee hood and air system, and the dryer steam and condensate system were supplied as a package unit from J. O. Ross Engineering and Ross Midwest Fulton Divisions of Midland-Ross Corp. The air system is of an intermediate velocity type with increased air velocities and air temperatures designed to increase drying rates. The supply air is impinged on the paper web from the new Ross "Internal-Convergent" nozzles which feature a specially designed continuous slot, with a minimum of static pressure loss. This is the first use of this type of nozzle on a Yankee air system.

The most apparent difference in this new air system is the use of the aluminum encased, fiberglass insulated panels of the type used on the Ross-Hooper totally enclosed hoods. Because of the higher air supply temperatures utilized, and because some of the ductwork is exposed to outdoor conditions, all of the supply and recirculation ductwork was shop insulated. The air system is equipped with a Briner economizer.

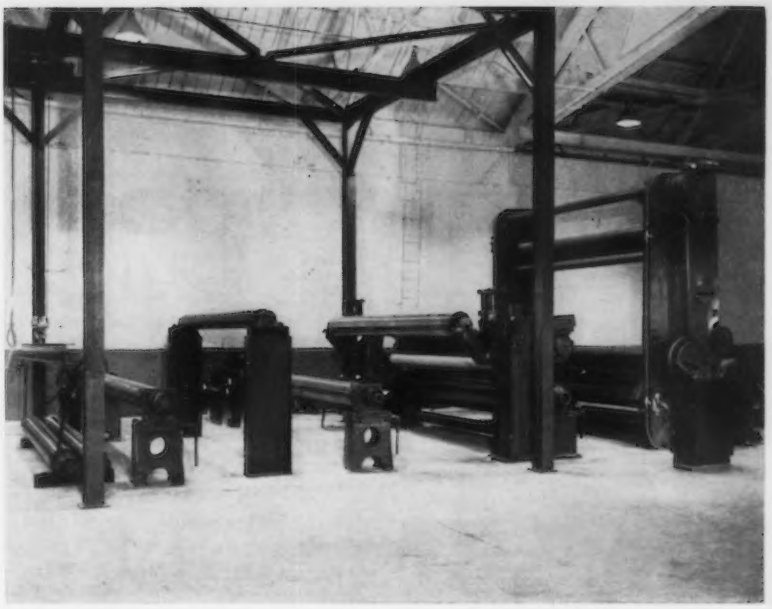
Ross Midwest Fulton forced vapor circulating system was provided to handle the steam and condensate requirements of the machine. Maximum steam economy was achieved by using blow-through steam from the Yankee in heater coils of the air system and felt shower water.

Following the Yankee there is a two roll upright calender, preceded by a Mount Hope roll. The bottom roll is 24 inches in diameter and the top roll 14 inches. The calender is equipped for pneumatic roll lifting



PRESS SECTION— Taken without felts to show roll arrangement in this area of the machine.

YANKEE DRYER— Dryer is covered with hood incorporating new air handling features.



WINDER SECTION — Includes expander roll, combining calender as well as slitter-winder.

and loading. The reel of the horizontal type has a 36 inch diameter drum and is equipped for automatic reel spool starting. The carriage and quadrant arm are pneumatically operated. There is another Mount Hope roll just ahead of the reel.

The winder section consists of a double set of Cameron pneumatically controlled backstands, a Mount Hope roll, a Sandy Hill combining calender and a Cameron No. 460 winder. The combining calender has a 24 inch diameter chilled iron bottom roll and an 18 inch diameter rubber covered, pneumatically operated top roll. The winder has score cut slitters designed specially for facial tissue slitting.

The paper machine is equipped with three Nash vacuum pumps, one large one on the suction press and two small units, one each on the flat boxes and the felt conditioners. The machine drive is sectional electric supplied by G. E. Process instrumentation throughout the mill is by Foxboro. The forced lubrication system was supplied by Superior Design, Inc.

The machine is designed for immediate operation at 2,000 f.p.m. and balanced for 3,000 f.p.m.

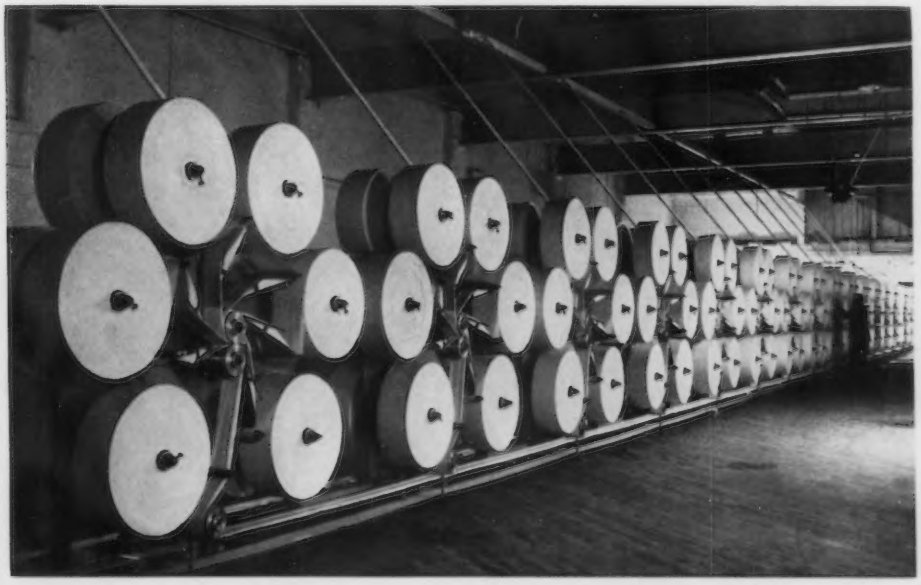
The complete machine with auxiliaries was supplied by Sandy Hill Iron and Brass Works. Rolls were rubber covered by Stowe-Woodward, Inc.

Converting Operation

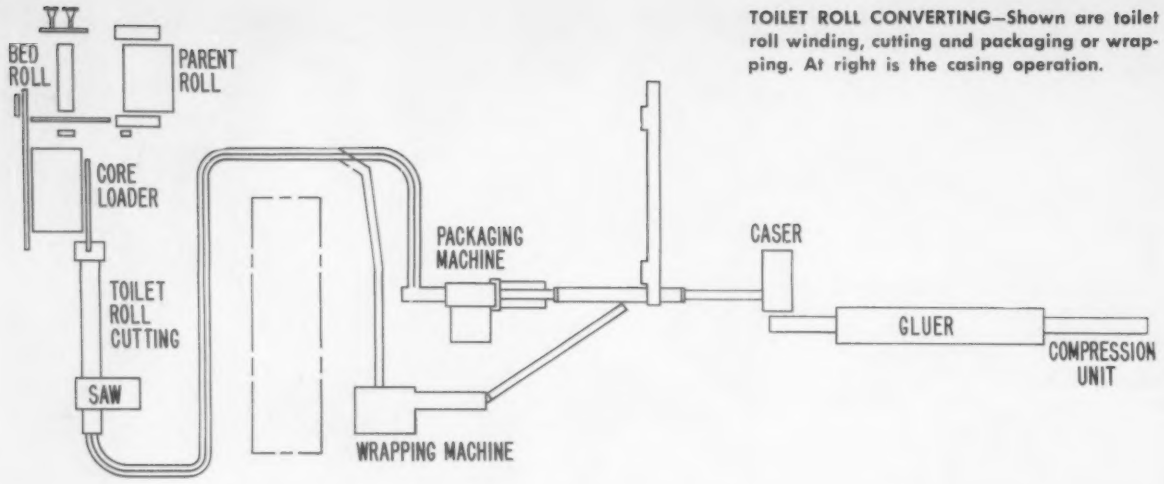
Jumbo toilet tissue rolls from the Cameron winder at the end of the paper machine are 69 inches long with a maximum diameter of 54 inches. The jumbo rolls are carried to the converting department by electric trucks.

Equipment for converting jumbo rolls to toilet paper rolls is by Paper Converting Machine Co. and includes unwind stands, automatic rewinder to produce log rolls and a log roll cutter. Cores for the automatic toilet paper roll machine are made on the floor directly overhead by a Dietz Core making machine and transferred by an enclosed chute to the core loading machine. They are carried to the roll winder by a belt conveyor. Perforation of the toilet rolls will be the new "straight edge" perforations recently introduced.

The toilet rolls then go individually to the Lawton wrapping machine where they are wrapped in printed paper wrappers and end sealed or alternatively the rolls are sent to a



TEAL BACKSTANDS— Feeding cutter-folder for facial tissue production.



TOILET ROLL CONVERTING—Shown are toilet roll winding, cutting and packaging or wrapping. At right is the casing operation.

Battle Creek packaging machine where they are packaged two or four rolls in a printed polyethylene wrapper. The wrapped or packaged toilet rolls go to an Emhart caser where they are placed, 96 rolls in a shipping container which is sealed on an automatic case sealer.

Rolls for facial tissue leave the winder as 30 inch diameter rolls, eight and one quarter inches wide and are transferred to the converting department by truck.

These rolls are set up on a Doty Machine Works cutter-folder with Teal backstands. The cut and folded sheets are carried by conveyor to a Jones constant motion cartoning machine for boxing and then go to an Emhart casing and case sealing machine.

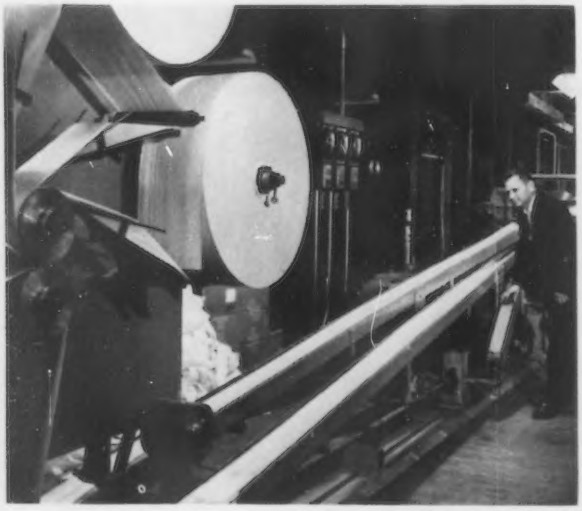
Extensive storage areas for both types of tissue are available convenient to truck and rail loading platforms.

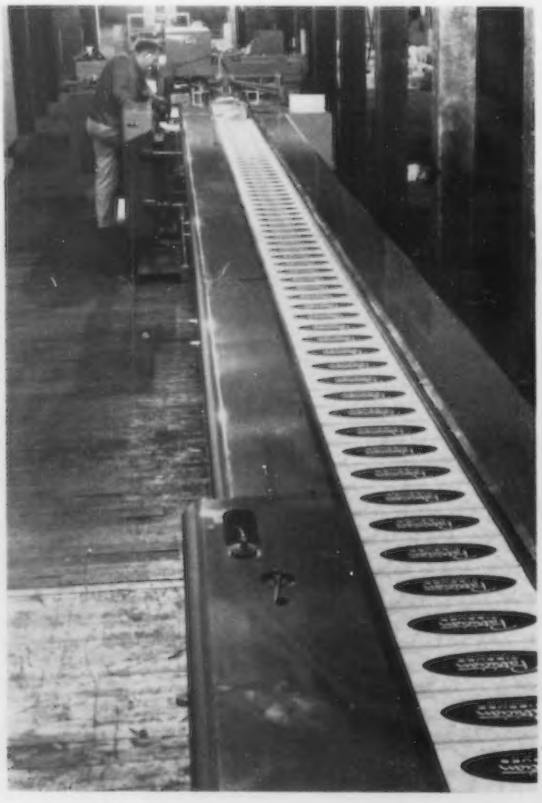
As can be seen from the above, the converting operation is highly mechanized and it is anticipated that manpower requirements here will be small.

Supervisory Personnel

The supervisory staff at the mill, in addition to Mr. Holl, includes: Thomas Zaytaz, superintendent; John Verratti, converting superintendent; John Seabury, ass't converting superintendent; John Soderholm, chief electrician; J. Losaw, master mechanic; chief pipefitter, D. Humiston; and George Finger, office manager.

FOLDED TISSUE—From backstands is being fed into cutter section.





CARTONING OPERATIONS—Cut and folded sheets are fed into automatic packager.

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ICI

Maintenance of

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The forty-three sections of this book represent the first effort anywhere to publish in one volume comprehensive coverage of the maintenance of most major equipment used by our industry. Each section deals with the problems of a specific type of equipment such as drum barkers, jordans, vacuum pumps, etc. The book, therefore, presents a completely different and more concrete approach than our previous publication (still available) "Pulp, Paper and Board Mill Maintenance" where the subject was discussed in the more general terms of: organization, planning, lubrication, and the specialized problems of each operating department.

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Chemical Pumps
Vacuum Pumps
Centrifugal Screens
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If you wish the facts on 2-stage bleaching of groundwood pulp, using hydro for the second stage, wire, phone or write us. We will send data—or, if you prefer, a "Virginia" technical man. Write Chemical Division, VIRGINIA CHEMICALS & SMELTING COMPANY, Dept. 298, West Norfolk, Va.

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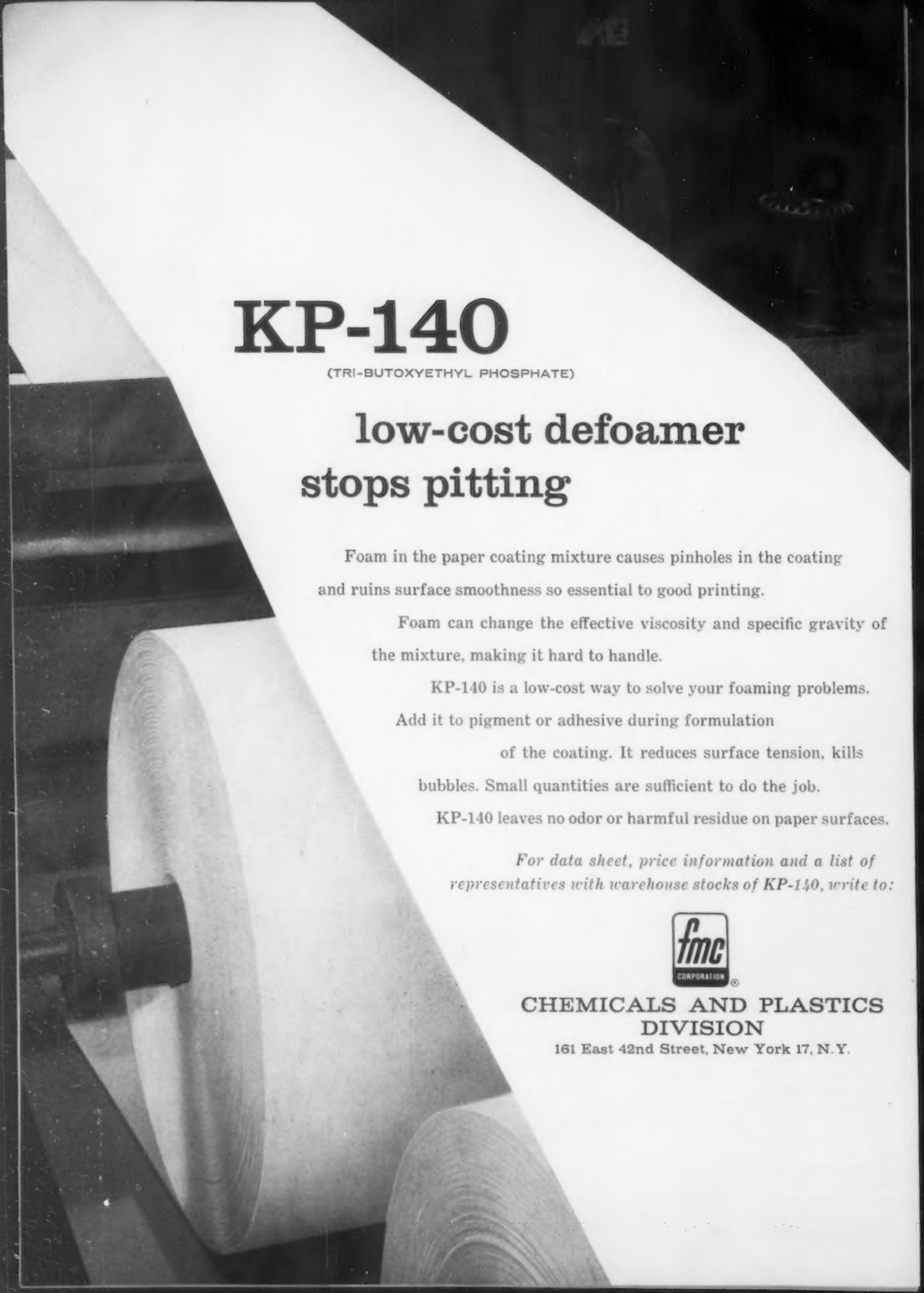

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The addition of the new Series 1400 valve body to the Honeywell line of control valves now gives you a choice of actuator-body combinations to match your applications. Now you can choose the exact type and degree of control you need, without pushing a valve beyond its design limits . . . or without paying for more performance than you need.

The compact Series 1400 valve body is available in a full range of materials, ratings and sizes, with screwed or flanged ends. It can be used to regulate small flows in process, pilot plant, research and commercial control systems. Each body size (½", ¾" and 1") has a wide range of reduced ports with Cv's from .025 to 11.0. Two bonnet constructions facilitate mounting of five types of actuators —three pneumatic and two electric.

Each actuator-body combination fits a different range of operating conditions and performance characteristics, but with sufficient overlapping of these ranges to give you a wider selection on the basis of cost. For complete details, write for Bulletin B803-1. MINNEAPOLIS-HONEYWELL, Fort Washington, Pa.

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PJT NEWS OF SUPPLIERS

AGREEMENT LICENSING Ishikawajima-Harima Heavy Industries, Ltd., to manufacture Black-Clawson equipment in Japan is signed by Frank T. Peterson, Black-Clawson president, during a meeting in Tokyo with leading officials of IHI. The signing is witnessed by Samuel Efron, (right center) executive vice president, Parsons & Whittemore, Inc.

The Black-Clawson Co. has signed an agreement with Ishikawajima-Harima Heavy Industries, Ltd. (IHI), Tokyo, licensing IHI to manufacture in Japan the complete line of Black-Clawson machinery.

In announcing completion of the manufacturing agreement, Frank T. Peterson, president of Black-Clawson, also reported the formation of Black-Clawson (Japan), Ltd., as a service company in Japan to provide technical and sales liaison between IHI and Black-Clawson's five manufacturing divisions in the United States.

The Japanese paper industry, now the third largest in the world, has through this agreement a single domestic source of capital equipment to fill its expanding production needs in pulping, stock preparation, and paper and board manufacture and converting.

IHI, one of the largest heavy equipment builders in Japan with a history dating to 1853, has four modern foundry and machine plants and an engineering staff of over 2,000.

In preparation for manufacturing Black-Clawson equipment, teams of IHI engineers and technicians took up residence for several months in the American plants of Black-Clawson and worked on the job with B-C production managers, design and sales engineers, estimators and quality control leaders to become thoroughly skilled in applying Black-Clawson machine designs and manufacturing procedures.

E. I. du Pont de Nemours & Co., Wilmington, Del., has appointed Victor M. Hurka assistant plant manager of the Chambers Works of its Organic Chemicals Department.

Named to succeed Dr. Hurka as director of the Technical Laboratory of the company's Dyes and Chemicals Division is Robert F. Stevens who, for the past four years, has been division sales manager for industrial chemicals.

J. Donald Martone will assume responsibility for the sale of industrial chemicals in addition to his present duties as intermediates sales manager.

Dr. Hurka began his career with Du Pont in 1941 as a research chemist at Waynesboro, Va. In 1950, he was named chemist in the plant technical section of the Chambers Works. He held various supervisory positions in different areas of the Chambers Works until 1958, when he was appointed general superintendent of employe relations. Early in 1959 he was transferred to Wilmington as assistant production manager of the Manufacturing Division of the Organic Chemicals department and, later that year, returned to the Chambers Works as director of the Technical Laboratory.

Mr. Stevens joined Du Pont in 1939 as an industrial engineer at the Chambers Works. He later held supervisory positions in various operating areas of the plant, and in 1951 joined the staff of the Technical Laboratory as a technical assistant.

In 1952, he became a salesman in the Providence, R. I., district office of the Dyes and Chemicals Division and a year later returned to Wilmington as an assistant technical manager in the division. After two years as sales supervisor in the Philadelphia district office, he was made sales manager for industrial chemicals in 1957.

Mr. Martone started with Du Pont in 1941 as a chemist in the Technical Laboratory. Except for a year at plants operated by the Du Pont company for the government during World War II, he held supervisory positions at the laboratory until 1953. He was assigned to the Dyes and Chemicals Division's Charlotte district as a sales representative from 1953 to 1955 and to its Chicago district office as sales supervisor until his transfer to Wilmington in 1957 as sales manager for organic intermediates.

V. R. Hurka

R. F. Stevens

J. D. Martone

P. A. Fodor, Jr.

Pittsburgh Plate Glass Co., Pittsburgh, Pa., has appointed Paul A. Fodor, Jr., director of sales for the chemical division.

Mr. Fodor, formerly assistant di-

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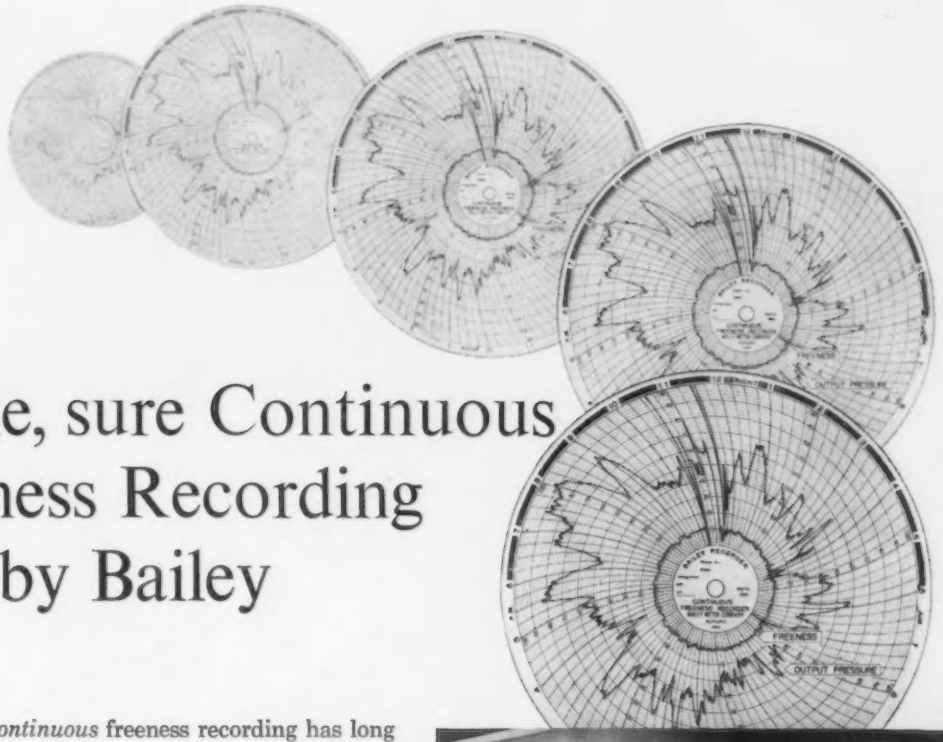

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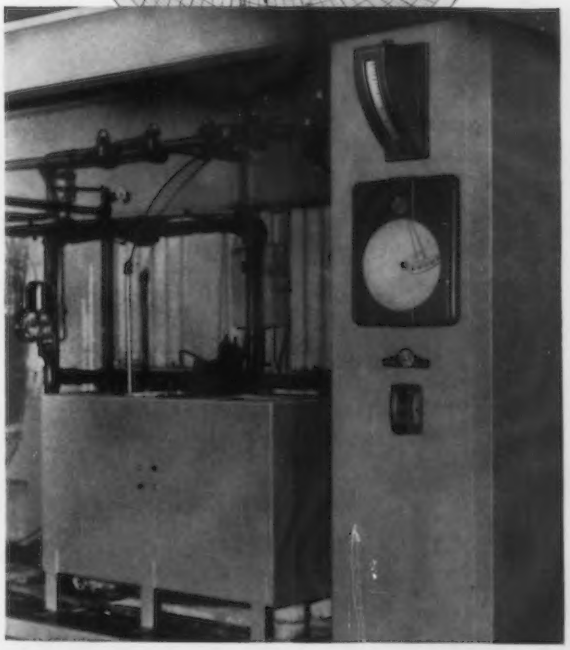

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rector of sales, succeeds W. F. Newton who recently was appointed director, marketing planning, for Pittsburgh Plate's merchandising division.

Mr. Fodor has been associated with the company's chemical division (formerly Columbia-Southern Chemical Corp., a Pittsburgh Plate subsidiary) since joining the Barberton, Ohio, plant as a development engineer in 1940. He also served as production engineer both at Barberton and at Bartlett, Calif., prior to his transfer in 1947 to the chemical division's research and development department in the firm's Pittsburgh headquarters.

He was appointed district sales manager at Philadelphia in 1952 and four years later returned to Pittsburgh as assistant director of sales. Mr. Fodor is a graduate of Ohio State University.

Hinken and Co., Inc., of Pittsburgh, Pa., has been appointed to represent American SF Products, Inc., manufacturer of air handling equipment for the paper industry. Under the presidency of William Hinkle, Jr., this firm will handle SF equipment throughout Ohio, West Virginia, western Pennsylvania, and the two northern Maryland counties.

Rust Engineering Co., Pittsburgh and Birmingham, elected Henry C. Goodrich a director at the September 20, 1961, stockholders' meeting.

Mr. Goodrich has been a vice president of Rust Engineering in the Birmingham office since 1956. He joined the company in 1946, after serving as an officer in the United States Navy, Civil Engineer Corp.

L. Kelly

H. C. Goodrich

W. Lawrence

P. Kolm

Cellulose Sales Co., Inc., New York, announces the election of Lawrence Kelly and Walter Lawrence as vice presidents and Philip Kolm as assistant treasurer.

Mr. Kelly has been associated with Cellulose Sales since 1945 and prior to joining the Sales department in 1951 headed the Traffic department.

Mr. Lawrence has been identified with the sale of woodpulp, both domestic and Scandinavian grades, for the past 20 years and joined Cellulose Sales in 1958.

Mr. Kolm has been associated with Cellulose Sales since its inception in 1938, as accountant, becoming assistant secretary in 1951.

Minneapolis - Honeywell Regulator Co., has named Richard T. Waits, Jr., Eastern Regional industrial manager with headquarters in Long Island City, N. Y. He succeeds D. W. Fryback, who becomes account executive at Hartford, Conn.

Mr. Waits will be responsible for sales of industrial process instruments and control systems in New England, northern New Jersey and

(Continued on page 44)

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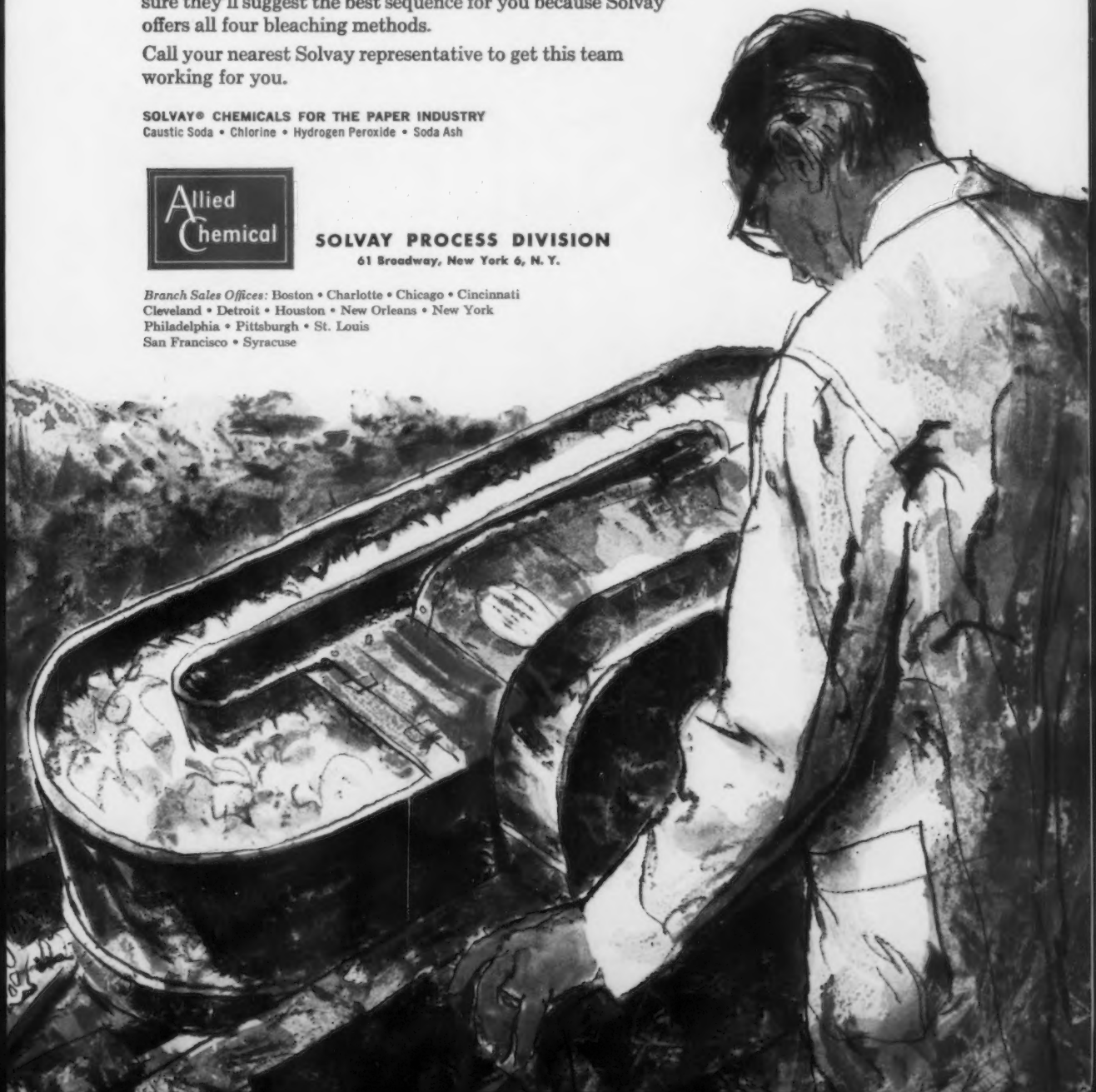

How a groundwood mill screens knots and slivers automatically with the

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At Consolidated Paper Corporation, Grand'Mere Quebec, removal of long wood slivers and knots from raw groundwood stock was previously accomplished by a combination of screening through a bar rack and manual raking.

The job is now done automatically and with considerable saving in overhead costs by the unique equipment shown in the photograph. It consists of a bar screen shaped to form a quadrant and continuously cleaned of screened material by a revolving rake mechanism. This unit is installed in a channel 5'6" wide and 3' deep. It handles approximately 9,000 gpm of 1% consistency groundwood stock. Screenings comprise about 15 cu. ft. per million gallons.

The Dorrco Bar Screen was originally produced for sewage and waste screening. Several hundreds of successful installations for this purpose are in operation. The equipment is simple, rugged and requires little power. A variety of sizes are available and in many cases can be fitted into existing channels. The Consolidated Paper Corporation installation represents the first adaptation of the unit, which was modified and strengthened for use in the pulp and paper field. Opportunities exist for wider application.

For full information, write to Dorr-Oliver Incorporated, Stamford, Conn.

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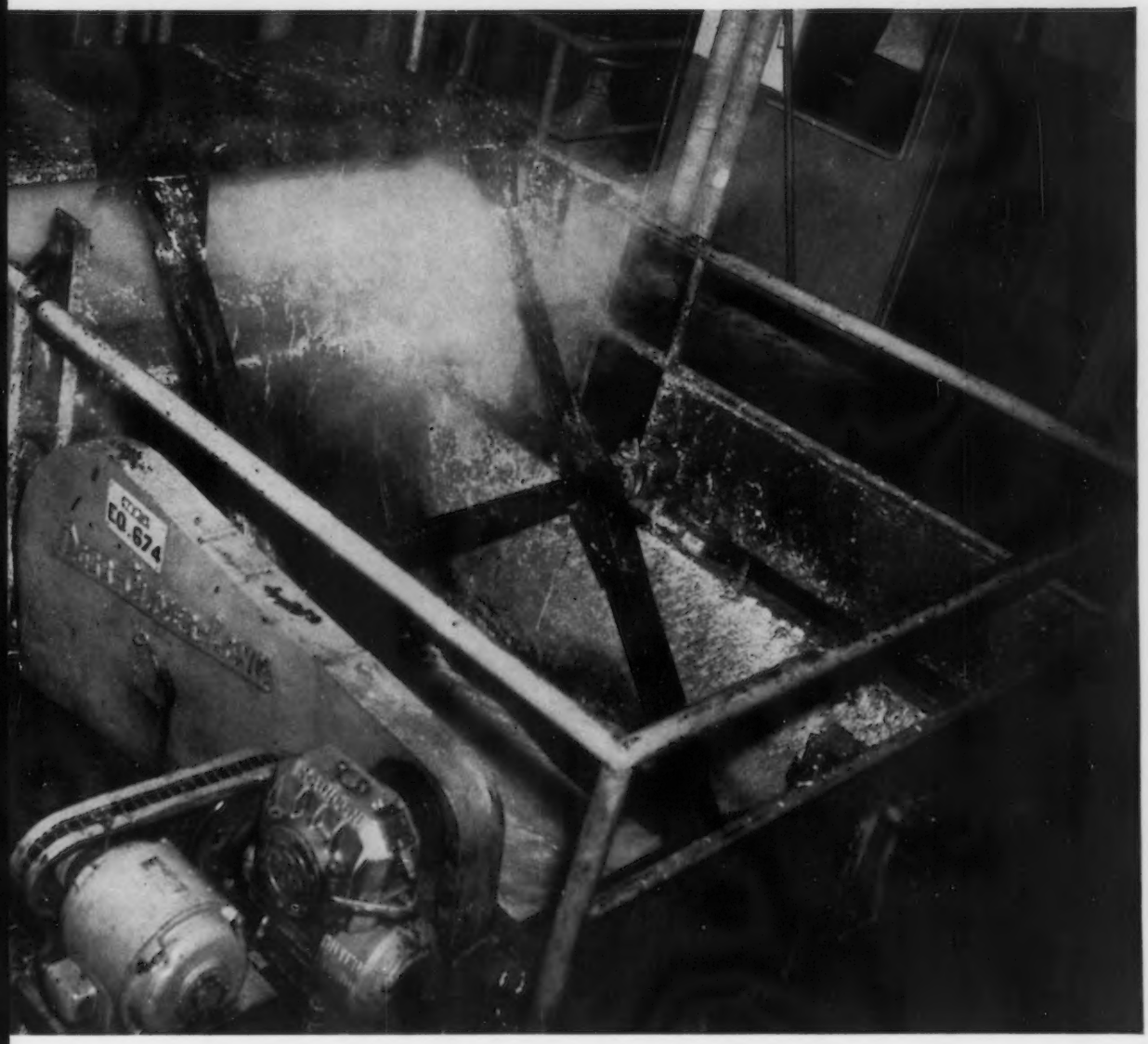
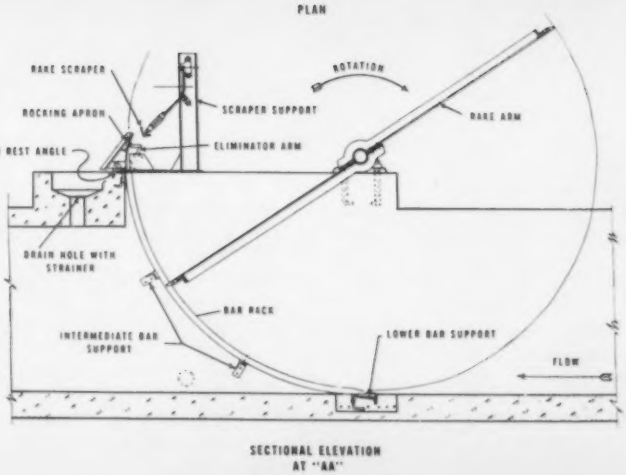


Operation of the Dorrco Bar Screen is demonstrated in the photograph and the drawing at right. Flow is against the concave side of the screen. Plates at the ends of the revolving rake are toothed to dovetail into the bar openings, preventing any possibility of clogging. Screenings are continuously swept upward and then removed from the rakes by a scraper bar attached to a rocker arm.



(Continued from page 40)

most of New York state. He joined Honeywell in 1945, serving successively in Atlanta, Charlotte, N. C., and Greenville, S. C. He had been branch manager for North and South Carolina. He is a mechanical engineering graduate of Georgia School of Technology.

Joseph T. Ryerson & Son, Inc., has appointed Robert H. Wasz assistant vice president. Formerly general manager of the Ryerson plant in San Francisco, Mr. Wasz will headquarter in the firm's general office in Chicago. He will have the responsibility of administering the company's fabricating and manufacturing activities. Succeeding Mr. Wasz as general manager at San Francisco is Norman F. Rewoldt, who was manager of work order sales at this plant.

Foxboro Co., Ltd., Foxboro, Mass., has announced plans for a $600,000 addition to its Montreal plant. Contracts have been signed and actual construction will start soon on the firm's 12-acre site. It is expected that the building will be ready for occupancy early next spring.

The new two-story structure will give the plant a total of 110,000 square feet, permitting a substantial increase in the production of Foxboro instruments supplied to the process industries of Canada and to export markets as well.

Foxboro also announced that Edward R. Huckman has been named general sales manager. He will have charge of all industrial instrument sales activities for the Montreal firm and its branch offices in St. John, Toronto, Sudbury, Port Arthur, Edmonton, Calgary and Vancouver.

Mr. Huckman is a graduate of the Massachusetts Institute of Technology with a B.S. degree. A veteran in the field of process measurement and automatic control, he originally started his instrument career in 1927 at the main plant in Foxboro, Mass. After sales assignments in Tulsa and Dallas, he was made manager of the St. Louis office. In 1941 he moved to the New York office as assistant branch manager, was appointed manager in 1948 and regional manager in 1955.

For the past three years he has been assistant field sales manager for the U.S. sales organization.

SEATED: Lewis White, Supt., St. Regis Paper Co., Pensacola, Fla.; Louis Forcier, Supt., Waldorf Paper Products Co., St. Paul, Minn.; David Bond, Supt., Gulf States Paper Corp., Demopolis, Ala.; F. S. Saunders, Weyerhaeuser Co., No. Carolina Division, Plymouth, N. C. Standing: S. Stuart Engle, Tech., Dir., Everett C. Reed, Pres., and Samuel C. VanPraag, Sales Manager, all of Albany Felt Co., Albany, N. Y.

Albany Felt Co.'s recent bleached kraft Round Table had top production men from paper mills in Canada and across the nation as guests. The three-day session was held at Albany Felt's Albany, N. Y., plant, with Larry M. Woodside, chief engineer, technical field services, moderating.

Among the major topics under discussion were: shadow marking, finish, Durasorb needled felts, coating and felt cleaning and conditioning.

Representatives were present from mills in Ontario and Quebec, Canada, Washington, California, Virginia, Idaho, Florida, Minnesota, Alabama, North Carolina, Wisconsin and Michigan.

Among Albany Felt. Co. executives attending were Everett C. Reed, president; Z. J. Chagnon, executive vice president; Wayne G. Davis, vice president, Felt Sales; J. Spencer Standish, president; James E. Smith, vice president and general manager, Albany Felt Co. of Canada, Ltd.

Penn-Olin Chemical Co. new sodium chlorate plant at Calvert City, Kentucky, commenced operation on schedule, September 1, announces James McWhirter, president.

The completion of the new ultra modern 26,000 t. p. year facility makes available a new source of sodium chlorate for pulp and paper processors, particularly in the southeastern states. The plant, Mr. McWhirter reported, has sufficient capacity to fulfill anticipated needs of the market for the next several years.

Penn-Olin Chemical Company was formed early in 1960 by Pennsalt Chemicals Corporation and the Olin Mathieson Chemical Corporation. The multi-million dollar electrochemical unit comprises the latest Pennsalt cell design, with fully automated control and production systems. Olin, through its regular sales offices and marketing organization, is handling the sales of sodium chlorate from this new facility which Pennsalt is operating.

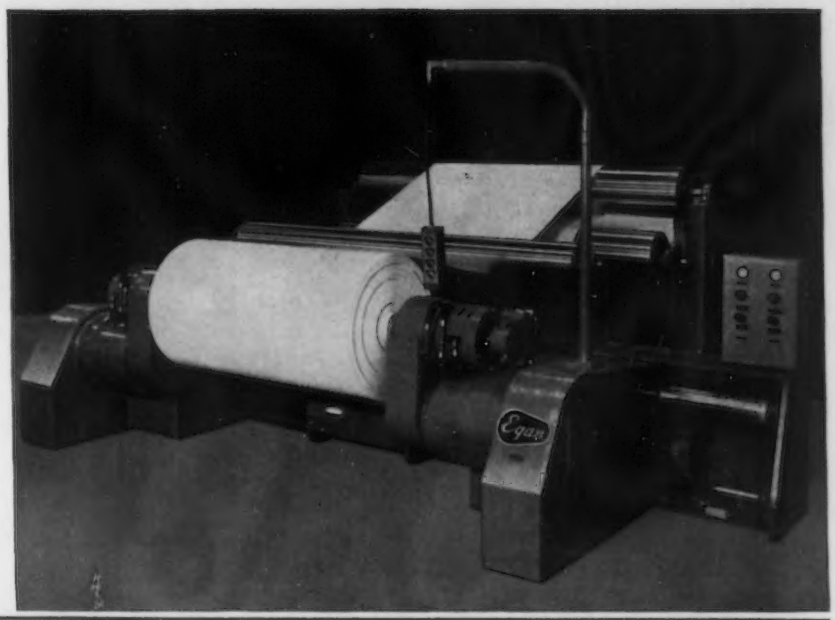
Corn Products Sales Co., New York, has appointed Daniel E. Lucas Eastern Regional sales-service manager for the Industrial Division. Mr. Lucas replaces Clyde D. Woodburn, who was recently named manager of the division's Philadelphia District office.

Mr. Lucas will be located at the company's Eastern Region office, 10 East 56th Street, New York 22, N. Y. He comes to this post from Argo, Ill., where he was manager of the company's Technical Service department.

Pittsburgh Plate Glass Co.'s Chemical Division has announced appointment of district sales managers for three West Coast district offices.

Appointed district managers for two newly established sales offices were H. Richard Sherburne at Los Angeles, Calif., and Arthur W. Wilson at Portland, Ore.; also, Donald A. Huff at San Francisco, Calif., succeeding O. W. Andrews who was named director of marketing services

The unit shown at right was installed at the S. D. Warren Company's Plant, Cumberland Mills, Me. It operates at speeds up to 1000 fpm and handles rolls 84" wide and 50" in diameter.



NEW... COMPACT!

EGAN SHAFTLESS UNWIND

Egan presents the newest . . . most advanced . . . most compact . . . shaftless unwind ever designed for unwinding and converting applications!

The Egan Shaftless Unwind has eliminated the cross shaft between the pick-up arms. This saves considerable floor space by permitting the use of extremely short arms. As a result, the unit is more rugged; more compact, and allows for greatly reduced gear loading.

Designed for floor pick-ups, the Egan Shaftless Unwind can be readily handled by one man. Motorized chucking of rolls is also possible with 3 I.D. cores and up. Automatic side-shifting can be provided as an optional feature, as well as constant tensioning. However, skew adjustment is considered to be a standard feature.

The unit's greater rigidity also assures better operation at high speeds. An Egan Shaftless Unwind, which will handle rolls 12" to 90" wide with diameters ranging from 14" to 60", is capable of speeds up to 3500 fpm.

LICENSEES
ENGLAND—BONE BROS. LTD., Wembley
FRANCE—CONST. MEC. ABC, St. Germain-s/Morin (S.-&-M.)
GERMANY—ER-WE-PA.—Erkrath bei Duesseldorf
JAPAN—MINAMI SENJU MFG. CO., LTD., (Agent)—CHUGAI BOYEKI CO.), Tokyo
REPRESENTATIVES
ITALY—ING. LEO CAMPAGNANO, Milano
MEXICO—M. H. GOTTFRIED, Mexico, D.F.

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MANUFACTURERS OF PLASTICS EXTRUDERS & ACCESSORIES, PROCESSING MACHINERY FOR PAPER, FILM & FOIL, AIR DRYING SYSTEMS; ROTOGRAVURE PRINTING PRESSES; TEXTILE FINISHING MACHINERY, METAL PROCESSING EQUIPMENT

with headquarters in Pittsburgh, Pa.

Mr. Sherburne joined the company's chemical division in 1954 as a resident sales representative in Los Angeles. He is a graduate of Oregon State College.

Mr. Wilson, formerly resident sales representative for the chemical division in Portland, joined the company in 1957. He was graduated from Oregon State College.

Mr. Huff had served as a salesman since joining the San Francisco district office in 1958. He is a graduate of the College of the Pacific.

Joseph T. Ryerson & Son, Inc., Chicago, distributor of steel, aluminum, industrial plastics and metal fabricating machinery announces that it is now supplying stainless steel plate accurately cut to shape by the plasma flame method.

Reported to be the first metals distributor to give service on stainless steel cut by this method, Ryerson said that stainless plates 3/16 inch to 2½ inches thick can be cut to simple or intricate shape with the plasma flame cutter, free of dross and with quality of cut equal to or superior to that obtained with other cutting torches.

Ryerson said that the addition of this equipment to its already extensive facilities for supplying circles, squares, rectangles and irregular shapes from carbon and stainless steel plate was in line with its policy to provide its customers with the highest quality product possible with available equipment, along with the rendering of prompt and dependable delivery service. While the new plasma flames cutting equipment will be used principally for cutting stainless plate, Ryerson said it also may be employed to cut aluminum and carbon steel plate to satisfy the requirements of its customers.

North American Coal Corp., Cleveland, Ohio, a leading producer of bituminous coal for almost half a century, is constructing a new chemical processing plant on the Ohio River to produce aluminum sulphate. It is expected to be in full-scale commercial operation by the end of the year.

First commercial shipments of the aluminum sulphate output, to be marketed in both granular and liquid form, are scheduled to be made in January, Henry G. Schmidt, president of the company, announced.

North American broke ground for the $2 million alum-producing facility last March at Powhatan Point, Ohio, some 20 miles downstream from Wheeling, W. Va.

"North American's hopes for a brighter future are sustained by an exclusive new process which the company will use to produce the alum. The process was developed in cooperation with Strategic Materials Corp. of Niagara Falls, N. Y.," Mr. Schmidt added.

Key to the method is use of ore which North American for years discarded as waste in its coal mining operations. The ore lies in a band above the coal seam and must be removed to get at the black fuel. In it is contained alumina, or aluminum oxide, the raw material for making aluminum metal. Some ten million tons of the now-important alumina-bearing ore is presently above ground on sites adjoining the new plant, and many more millions of tons are in the ground.

The alum, or aluminum sulphate, will be extracted from the ore by combining the ore with sulphuric acid.

Alum from the alumina-bearing ore will be in purer form than that possible from conventional processes which start with bauxite or clays, the company added. For the paper industry, this represents a dividend in whiter paper, North American said.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Aug. 26	Sept. 2	Sept. 9	Sept. 16	Sept. 23
1961	91.7r	89.4r	70.1r	94.6r	91.7
	Aug. 27	Sept. 3	Sept. 10	Sept. 17	Sept. 24
1960	94.4	90.1	73.1	93.2	93.7

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1	94.8	92.0	80.2	92.7
1961	87.9	90.0	91.2	91.2	91.6	91.3	78.0	90.4‡					

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1954	1955	1956	1957	1958	1959	1960	1961
Year to Date	91.3	95.3	98.2	91.1	86.3	92.0	93.8	88.8
Year Average	91.6	96.2	97.9	90.4	87.0	92.0	92.7	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Aug. 26	Sept. 2	Sept. 9	Sept. 16	Sept. 23
1961	95	96	76	98	97
	Aug. 27	Sept. 3	Sept. 10	Sept. 17	Sept. 24
1960	92	94	70	93	93

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	94	88	93	86	73	89
1961	88	89	92	91	92	95	78	95					

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	WEEK ENDING Sept. 16, 1961	WEEK ENDING Sept. 23, 1961	CUMULATIVE TO DATE January 1, 1961 to September 23, 1961
% Activity	98%	97%	90%
Total	347,649	350,512	11,879,146
Containerboard—Domestic Use	179,076	192,371	6,073,967
Liner	119,165	131,056	4,050,873
Corrugating Material	54,283	56,279	1,839,649
Chip & Filler Board	5,628	5,036	183,445
Boxboard—Domestic Use	98,935	103,841	3,602,923
Folding	60,585	61,950	2,156,057
Set-Up	10,584	10,586	349,548
Special Food Board	27,766	31,305	1,097,318
Other Paperboard	69,638	54,300	2,202,256
Containerboard Type	36,084	24,688	1,061,962
Boxboard Type	33,554	29,632	1,140,294
Total Orders			
Received	358,696	344,260	
Unfilled End of Week	563,859	557,205	

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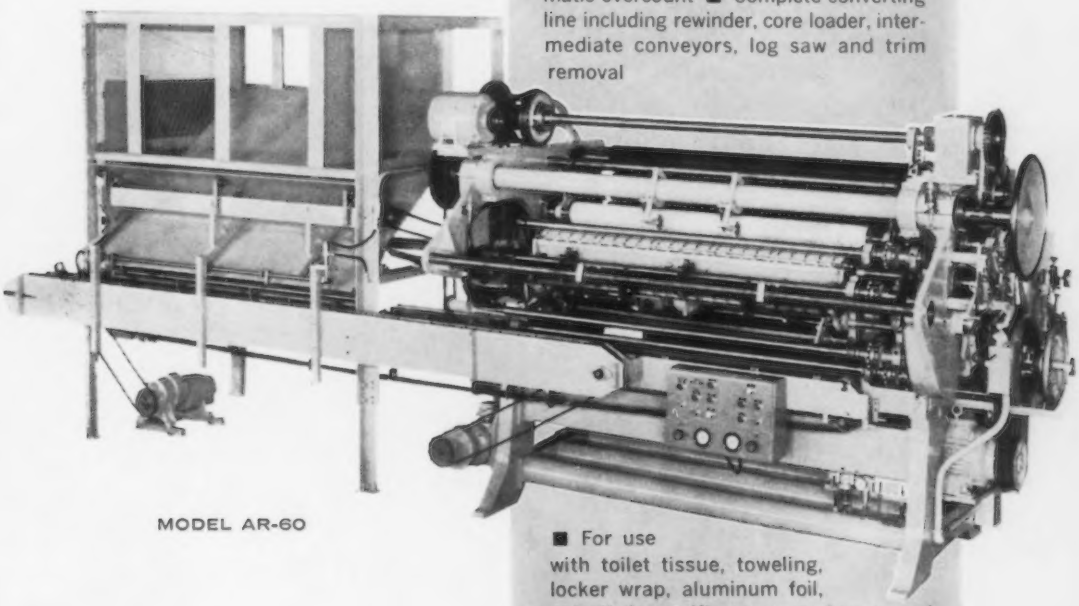
REWINDER and CORE LOADER

■ **100 CASES OF TISSUE PER HOUR with one operator and a pair of rewinders*** ■ Automatic full speed, web transfer with positive cut-off and absolutely accurate count ■ Automatic core loading, roll stripping, log transfer, cull discharge with mandrels mounted in turret — no manual labor ■ Soft rolls for latest consumer preference and shear-cut perforator for positive easy sheet tear-off ■ Shaftless unwind up to 72" diameter ■ Automatic constant tension unwind control ■ Finished roll diameter control through automatic overcount ■ Complete converting line including rewinder, core loader, intermediate conveyors, log saw and trim removal

*Actual production figures based on 4½" x 4½" sheet size, 650 count rolls — 96 roll cases off 2-81" rewinders.



MODEL AR-60

■ For use with toilet tissue, toweling, locker wrap, aluminum foil, polyethylene, gift wrap, waxed paper and other roll products.

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FOLDERS, REWINDERS, EMBOSSERS, NAPKIN AND CORE MACHINES, LETTERPRESS AND FLEXOGRAPHIC PRESSES, SPECIAL CONVERTING MACHINERY.

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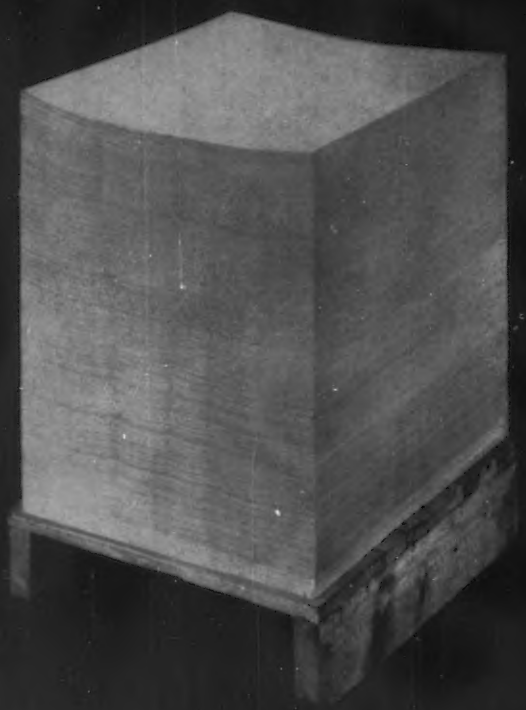
GREEN BAY, WISCONSIN

Want more production?



Announcing the Langston-Masson Sheet Cutter...

This is the cutter that gives you more positive control over your paper—especially at the three vital points: around the knife, at the overlapping station, and at the discharge. As a result, the Langston-Masson Sheet Cutter can be operated at higher speeds, and sheets can be laid evenly in smooth-sided stacks.

Calibrated sheet length indicator

Easy setup boosts productivity further. Adjustments are on the drive side, easy to reach and set. Instead of having to cut and try to get right sheet length, you simply refer to the calibrated sheet length indicator. This not only saves time, it reduces waste.

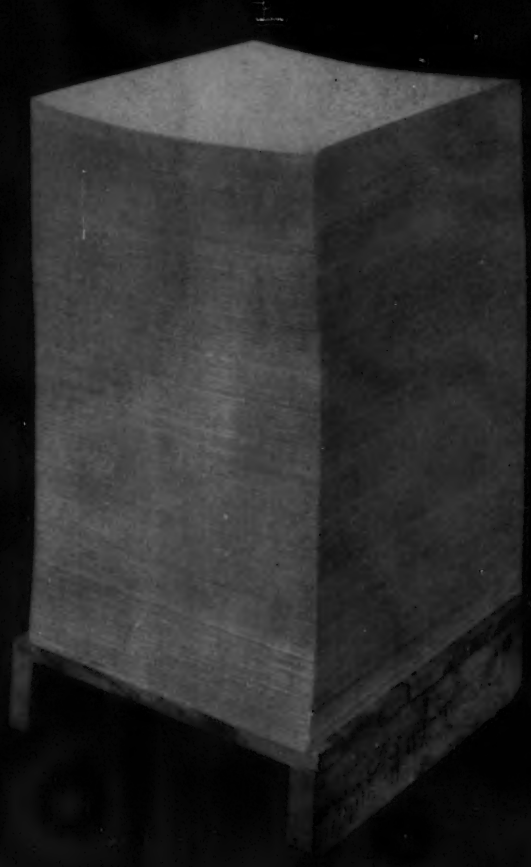
No trimming

Langston-patented precision shear-type slitters are standard on this machine. They are guaranteed to run true within .001 in., thus minimizing variations in sheet width. Also they keep paper dust to a minimum. The combination of true slitting, accurate cutting, and precision laying provided by this machine means that in many cases you can ship the paper as it is taken from the skid. Trimming is normally not necessary. Even where it is, trim allowances can be kept to a minimum. Again, this means less waste of paper and less handling cost per order.

Proven design

The Langston-Masson Sheet Cutter is being made by Langston under a license agreement with Masson-Scott, Ltd., of England. Paper mills in Canada and

Get a Langston-Masson Sheet Cutter



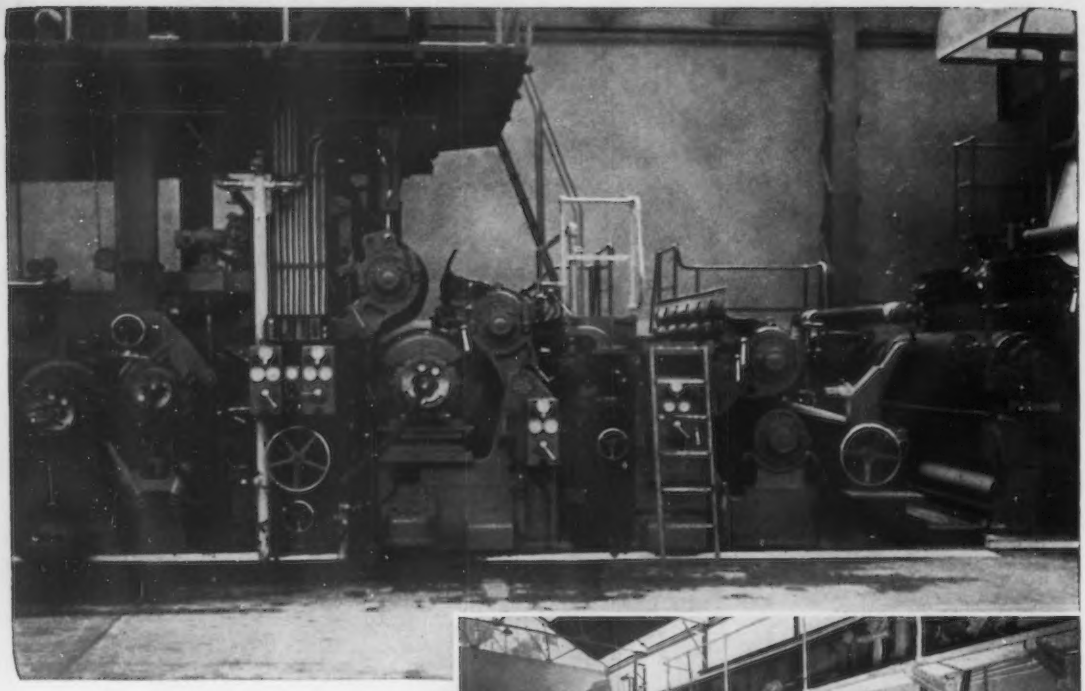
turns out more paper per hour, reduces waste

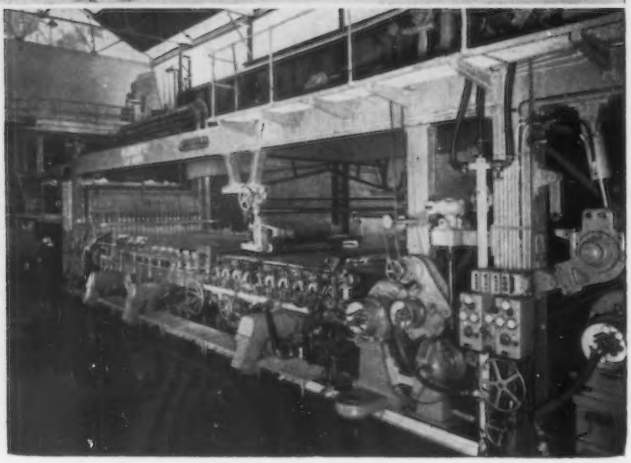
throughout the world are using the machine now and testify to the high merits of its design. Langston has incorporated several additional engineering changes as required for operation in North America.

Let us give you complete information on the Langston-Masson Sheet Cutter. Discover how much more you can produce in the same time and floor space, and how much you can reduce waste. Write Samuel M. Langston Co., 6th & Jefferson Sts., Camden 4, N.J.

Langston

LEADERSHIP . . . BY DESIGN





On the 2nd day after the test run

the guaranteed production was already exceeded by more than 20%, a proof of first class design and workmanship.

The illustrations show the wire and press sections of a special machine which produces thin paper at high speeds.

Technical details will gladly be supplied on demand.

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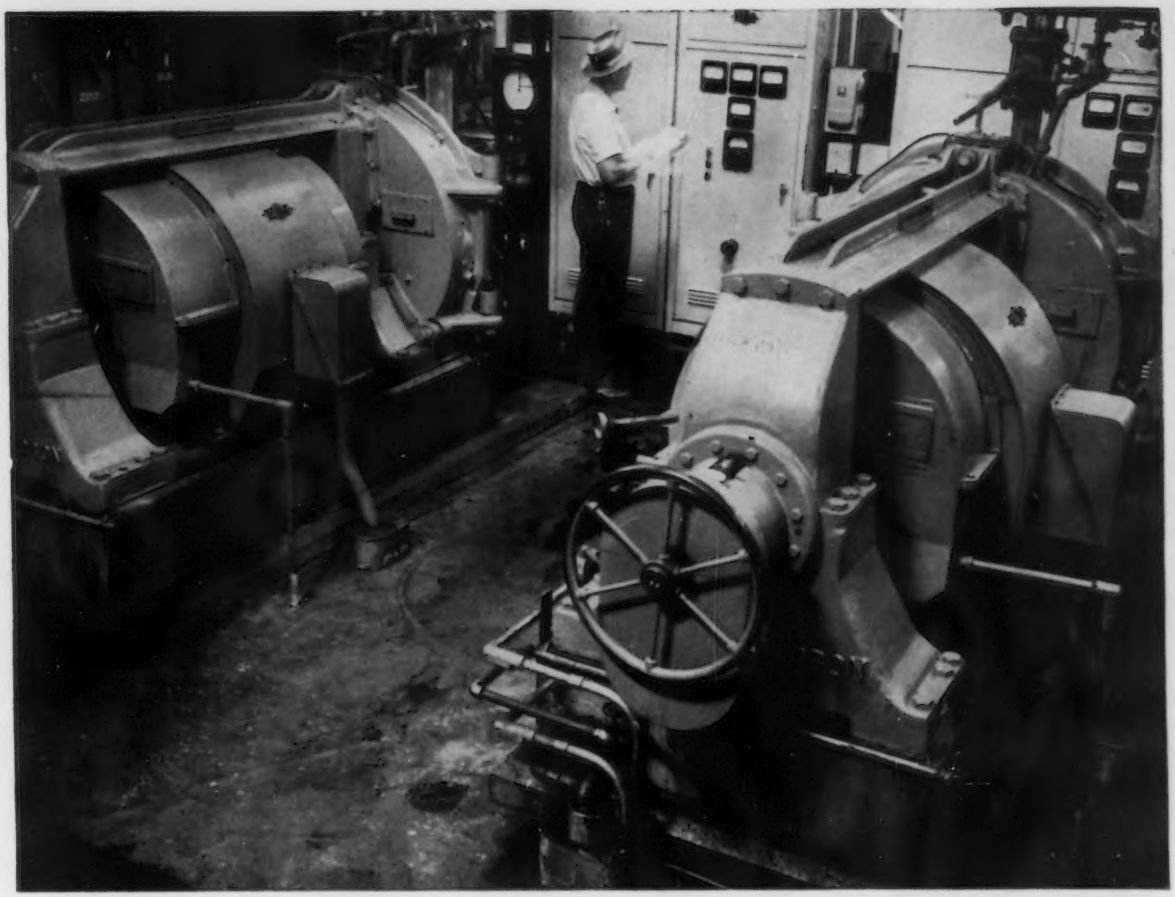

Two of the 33 E-M Synchronous Motors driving refiners at Masonite. The motors are rated 450 hp, 900 rpm, unity or 0.8 leading power factor. The motor controls shown are high interrupting capacity, current-limiting SA-FUSE type — also manufactured by E-M.

EIGHT YEARS AGO MASONITE SELECTED A 450 HP E-M SYNCHRONOUS MOTOR— *TODAY THEY HAVE 33 ON REFINER DRIVE!*

Masonite Corporation of Laurel, Mississippi now uses a total of 14,850 E-M horsepower!

Here are some of the reasons why Masonite's use of big E-M Refiner Motors has grown to 33 in just eight years!

THEY SAVE POWER DOLLARS. E-M Synchronous Motors have electrical and mechanical designs matched for high efficiency in converting electrical power to mechanical power.

THEY CORRECT POWER FACTOR. Unity or 0.8 leading power factor designs improve mill power factor to further reduce power costs. Each 450 hp, 0.8 leading power factor motor provides 260 reactive KVA to offset low power factor of induction motor mill drives.

THEY NEED LITTLE ATTENTION. Duty tested designs keep the motor interior clean and the windings dry — motor life is prolonged and maintenance is at a minimum. E-M Refiner Motors are "customized" for the rigors of paper mill service by specialists with nearly 60 years' experience in *big* motor application.

So, when you need paper mill motors with proven dependability, call your nearby E-M Sales Engineer. Also, write the factory today for your free copy of illustrated Booklet No. 49 which features Protective Motors.

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E-M

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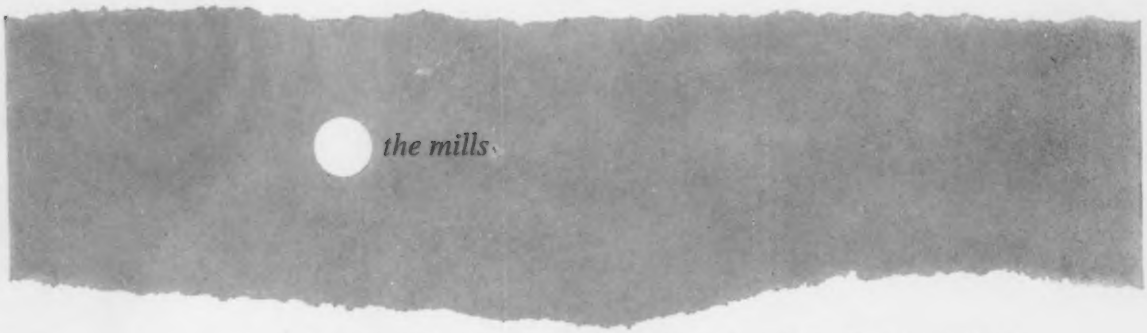
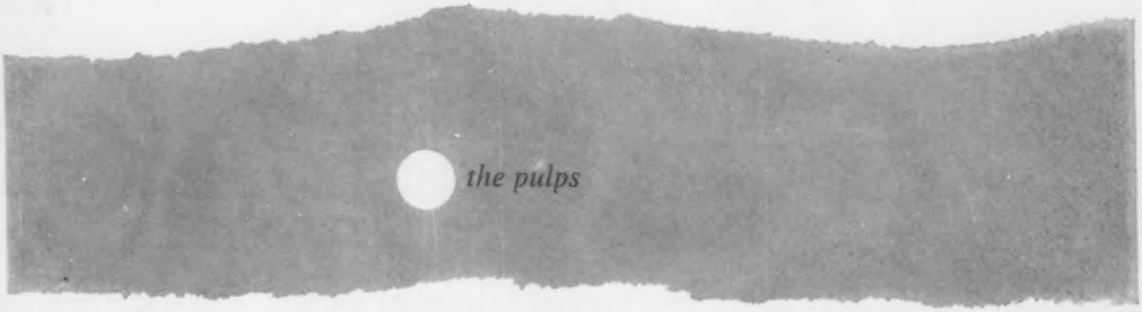
Specialists in making motors do EXACTLY WHAT YOU WANT THEM TO

MONTMORENCY

the mills
the pulps
the sales offices



Anglo-Canadian Pulp and Paper Mills, Ltd., Quebec, P.Q., Canada, produces 80 tons of boxboard, 200 tons of pulp and 1,000 tons of newsprint *a day*.
Dryden Paper Company, Limited, Dryden, Ontario, produces 400 tons of pulp and 180 tons of bleached and unbleached kraft paper and board *a day*.



- Anglo-Canadian WONDERCHIP unbleached sulphite
- Dryden bleached kraft
- Dryden unbleached kraft
- Dryden specialty krafts (semi-bleached, condenser, photographic, anti-tarnish, etc.)

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The money you can gain by using Accostrength® **Resin** is no illusion—the savings are substantial. You save by greater use of hardwood fibers. This resin increases the wet web strength—thus minimizing paper breaks in the wet end of the machine, reducing costly downtime. You save, too, because Accostrength improves the drainage on the wire, reduces steam requirements in the dryer—making higher production rates possible. Accostrength also lets you save through increased rosin size efficiency by reducing size usage up to 50% while still maintaining sizing specifications; or by producing a more highly sized sheet with the same amount of rosin size input you use now. Why not try the modern way to produce more paper, better paper, stronger paper—at lower cost with Cyanamid's Accostrength Resin. So call your Cyanamid salesman and get the facts.

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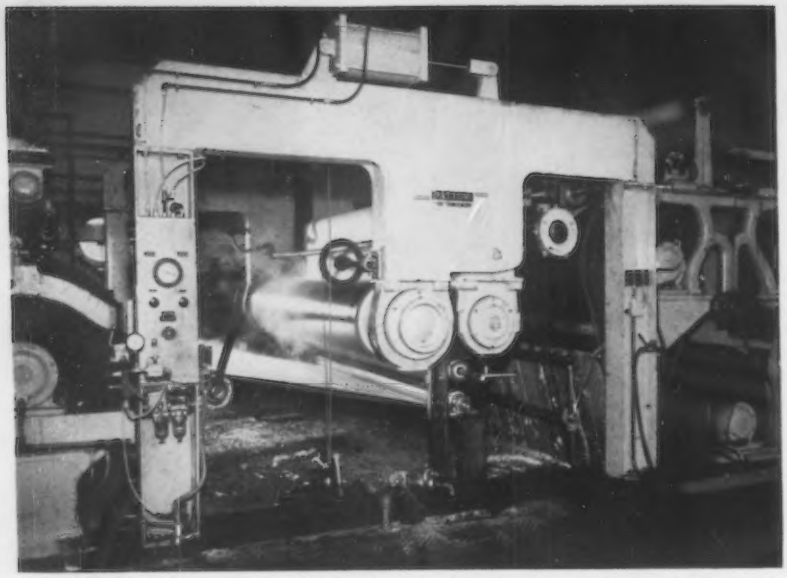

New horizontal size press on Sorg's No. 6 machine is of suspended "upside down" configuration to eliminate framework corrosion.

"Upside Down" Size Press at Sorg Relieves Housekeeping Problem

A new horizontal size press built by the Patton Manufacturing Co. has been installed in Sorg Paper Co.'s Number 6 machine at Middletown, Ohio. Press rolls are suspended from the framework, giving the press an "upside down" look. The configuration, first developed by Patton in 1959, simplifies roll changing and practically eliminates size corrosion of the framework.

Suspension of the rolls was originally conceived as a space-saving feature, but in the Sorg machine space was not a problem since the new press replaced an older size press that took up more room. The machine makes several grades, including flameproof stock.

Highly corrosive ammonium sulphate is applied hot by the new horizontal size press. The old press threw off quantities of the size, creating a major housekeeping problem. Homer Feerer, superintendent of Sorg's Mill No. 3, said that the new press is very clean in its operation, and has virtually eliminated spatter and throw-off. The machine operates at 900 to 1000 f.p.m., and the size press uses rolls having a 124-inch face. Air loading is provided by cylinders located atop the framework. The rubber roll on the dry side of the machine is the driver.

Wayne Crannell, general manager of Patton's Paper Mill Division, said that the Sorg size press was the fourth "upside down" style that Patton had furnished. "We pioneered the idea at Allied Paper Co. where we were able to install a horizontal size press by removing only one dryer. At Sorg, where there was no space problem, we were interested in cleanliness. The day is not too far off when the "upside down" style may be the normal and expected way to engineer a size press." said Mr. Crannell.

Donald Goodman, general superintendent of papermaking at Sorg, said the company was well pleased with the operation of the new size press. "We are continually striving to improve the quality of our products, and this replacement is helping us do that job," he said.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, JULY 2, 1946 AND JUNE 11, 1960 (74 STAT. 208) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF

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1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, George E. Lockwood, 49 West 45th St., New York 36, N. Y.; Editor, John C. W. Evans, 49 West 45th St., New York 36, N. Y.; Managing editor, John C. W. Evans, 49 West 45th St., New York 36, N. Y.; Business manager, none.

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GEORGE E. LOCKWOOD
(Signature of publisher)

Sworn to and subscribed before me this 18th day of September, 1961.
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single disc precision pulp refiner

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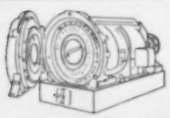

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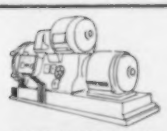

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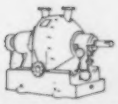

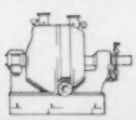

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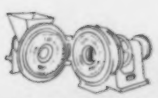

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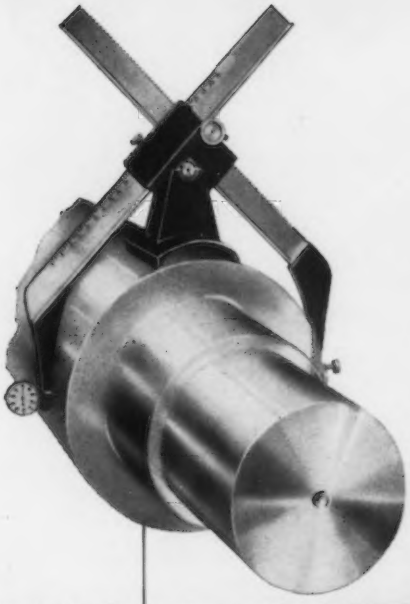

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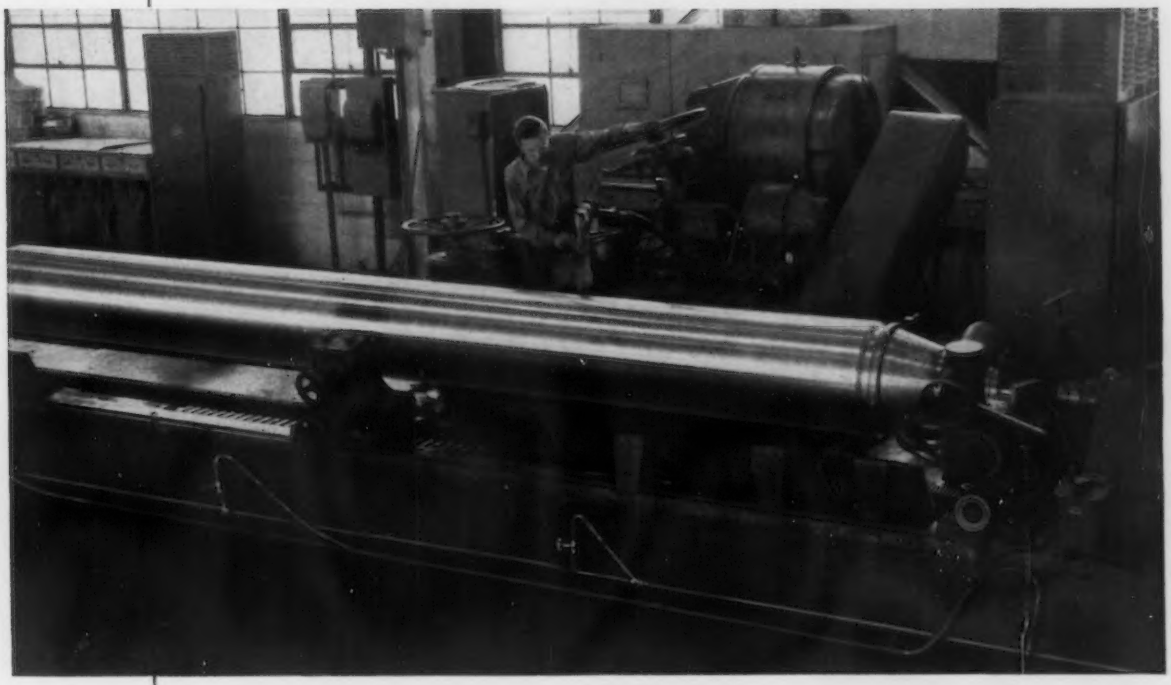

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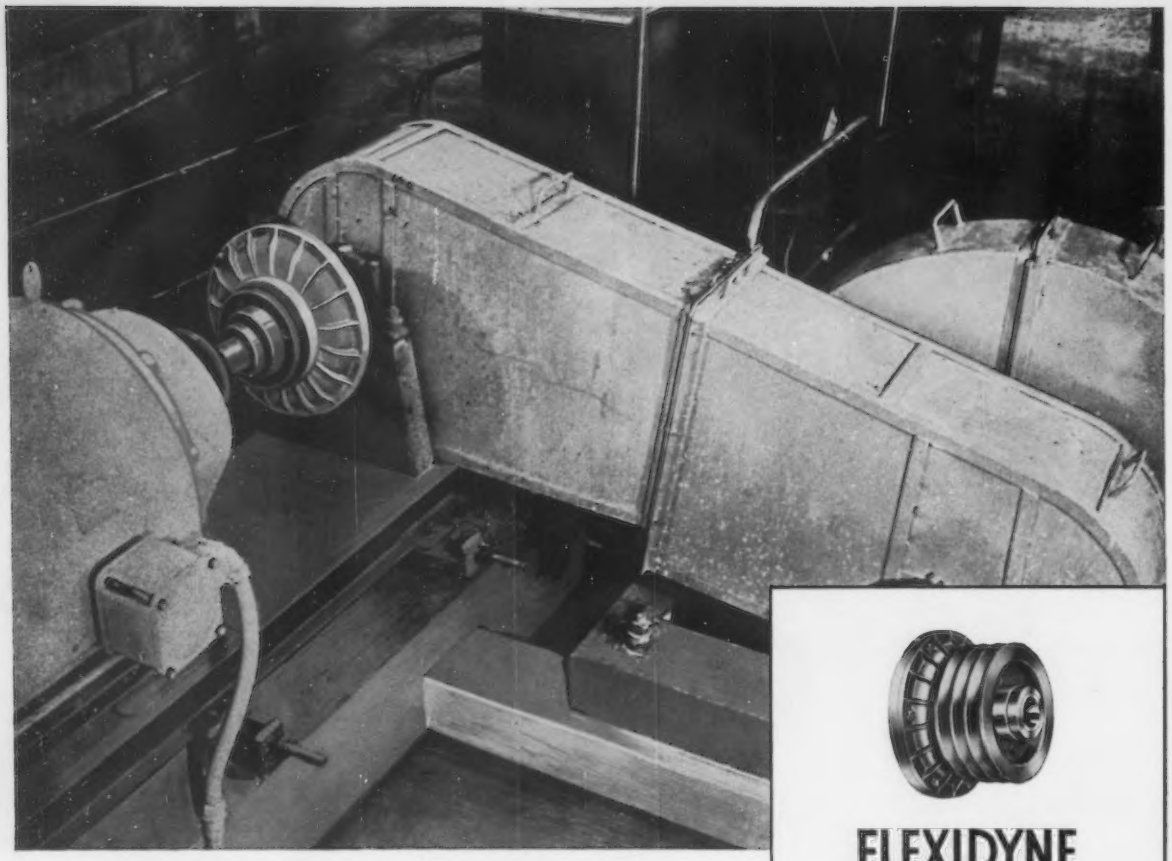

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Flexidyne is available from stock in 8 drive sizes and 10 coupling sizes for capacities to 1000 hp. Ask your Dodge Distributor, or write us for complete technical bulletin.

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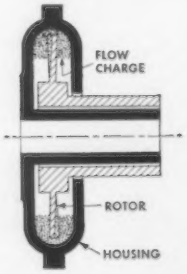
THE DRY FLUID DRIVE

The "fluid" in Flexidyne is heat treated steel shot. A measured amount, called the flow charge, is contained in the housing which is keyed to the motor shaft. When the motor is started centrifugal force throws the flow charge to the perimeter of the housing, packing it between the housing and the rotor which transmits power to the load.

After the starting period of slippage between housing and rotor the two become locked together and achieve full load speed, operating without slip and at *100% efficiency.*



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NOW...
WITH AUTOMATIC CORE SHAFT HANDLING AND CORE LOADER

HUDSON-SHARP 70-B Automatic Winder operates with continuous web speeds in excess of 1500 FPM!

Now, One operator for two winders can produce more than 165 cases of tissue per hour*.

CHECK THESE ADVANCED FEATURES:

- Winds web widths to 102" at 1500 FPM and higher
- Automatic core shaft handling
- Belt driven unwind with automatic tension control
- Positive "Clean Cut" or Conventional sheet perforations
- Automatic sheet or measured roll count
- Automatic roll or log stripping
- Variable speed surface wind-up for density and/or roll diameter control
- Economical — continuous high speed increases day's end production

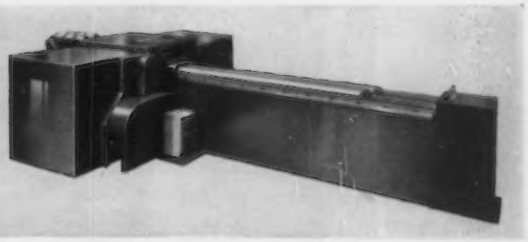
*Based on a 4½ x 4½" sheet (500 count, 2-ply — 96 rolls per case) on two 93" winders.

Winds toilet tissue, roll towels and similar soft paper products in continuous automation from core to finished log

In step with the era of automation, this modern winder with NEW automatic core shaft handling winds web widths up to 102" and processes parent rolls in continuous speed operation at 1500 FPM and higher. Automatically winds web into rolls of accurate sheet count — delivers full length logs and strips them from machine — all without slowdown or stoppage during any part of the cycle. Other important features include: "Clean Cut" perforating with patented "rocker-arm" construction for positive shear cuts across full web with minimum blade wear; constant tension belt wear; constant tension belt driven unwind for broader selection of roll density and quality; less web breakage with parent rolls of varying density and lopsidedness; simplified web threading and operating; one simple adjustment controls finished roll hardness and diameter; quick clearing of any jam-ups due to wads, poor paper, etc. A Hudson-Sharp Embosser, Core Loader, and Log Cutter can be added to extend the 70-B to complete automation — one operator can run two winders.

HUDSON-SHARP'S LOG CUTTER completes the automation from jumbo rolls to finished rolls, ready for wrapping

New model 7-C LOG CUTTER with new low center of gravity design promotes perfect balance for high speed conversion of paper logs to single rolls. Produces in excess of 200 rolls per minute on a two-lane machine and more than 300 rolls per minute on three-lane machine. Write for complete information.



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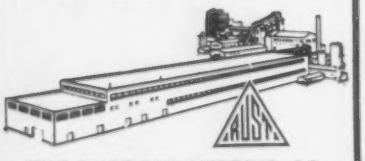
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PJT NEW LITERATURE

Automatic Data Loggers

Present data on Data-Master loggers which perform two basic functions: collection of data and presentation of this data in the most useful form for analytic purposes or for direct input into computers. This bulletin is written to alert potential users to the economy and application of Data-Master automatic data loggers. Photographs supplement discussion of operating system installations in manufacturing, distribution and process industries. 6 pp. Bulletin D401. The Bristol Co., Waterbury 20, Conn.

Bonnetless Knife Gate Valves

Lists features of the valve as well as materials, dimensions, actuators, and outlines the broad areas where the valve is extensively used. 8 pp. Bulletin 302, DeZurik Corp., Sartell, Minn.

Brown Stock Washer Control

Discusses consistency control, stock flow control, dilution control, filtrate tank level control, final shower control and centralization vs. local control. Illustrations are included. 2 pp. Application Sheets. Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio.

Glasteel Storage Tanks

Discusses the uses and advantages for storing a wide range of products including corrosive materials, purity-sensitive materials, and sticky materials. Supplied with agitators and/or heating panels which can be used to blend materials, dissolve solids in liquids, wash one liquid with another, prevent solidification of certain products. 6p. Bulletin 1012. Advertising Dept., The Pfaudler Co., 1135 West Ave., Rochester 11, N. Y.

New Designs in Lifting Magnet

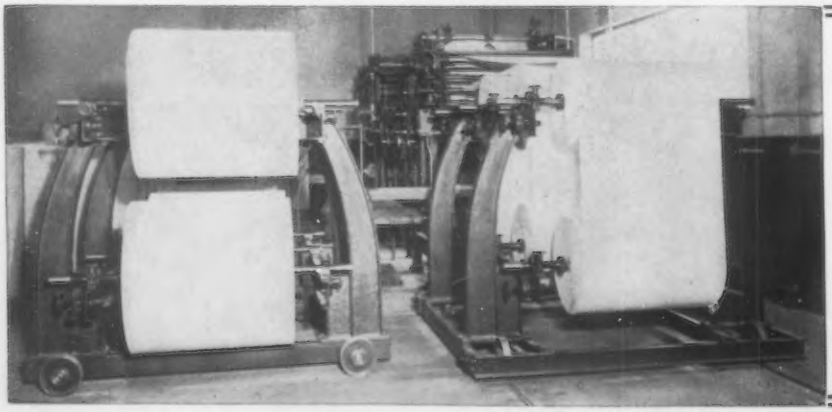
Contains detailed cutaway views of Stearns magnets, capacity and dimentional charts and guide to proper selection. Circular magnets range in size from 20 to 80 inches in diameter, rectangular magnets range from 9 by 24 inches to 26 by 80 inches. Bulletin No. 3022. Stearns Magnetic Products, 635 South 28th St., Milwaukee 46, Wis.

Rotary Valves

Describes precision built rotary valves for feeding dry bulk materials, or for use as an air seal. Two-color brochure details construction features of Day Type "A" and Type "B" valves. It includes application photographs, specifications, dimension charts and diagrams. Bulletin No. N-261. The Day Co., 810 Third Avenue N. E., Minneapolis 13, Minn.

Testing Sieves and Their Uses

Carries complete specifications on new U. S. Sieve Series ASTM E-11-61, comparison of U. S., Tyler and principal foreign Standard Sieve Series and a list of Foreign Standards using the fourth root of two systems of sieve openings. Contains useful information on selection. Handbook 53. The W. S. Tyler Co., 3615 Superior Ave., Cleveland 14, Ohio.


HAMBLET'S New Double Backstand on Tracks or Turntable . . .
. . . eliminates down-time for shafting and roll loading, increases cutter production 50%, manually or electrically operated.
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*Idea submitted by Wallace Parrish, Hudson Pulp & Paper, Palatka, Florida

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"What famous place reminds you of Hamilton Felts? Tell us why in a few words; sign your name and address and name of company. Each idea from a U.S. papermaker that we use wins a new 1961 model Shakespeare Spincast Rod and Reel—FREE! When identical winning ideas are submitted by 2 or more papermakers, the one with the earliest postmark will be considered the winner. Every U.S. papermaker *entrant* receives a famous Rex Spoon fishing lure — FREE. Send me your suggestion — today.
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Keeps down-time to a minimum.
That's one reason so many
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to show you how we can help you
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Or write us today."

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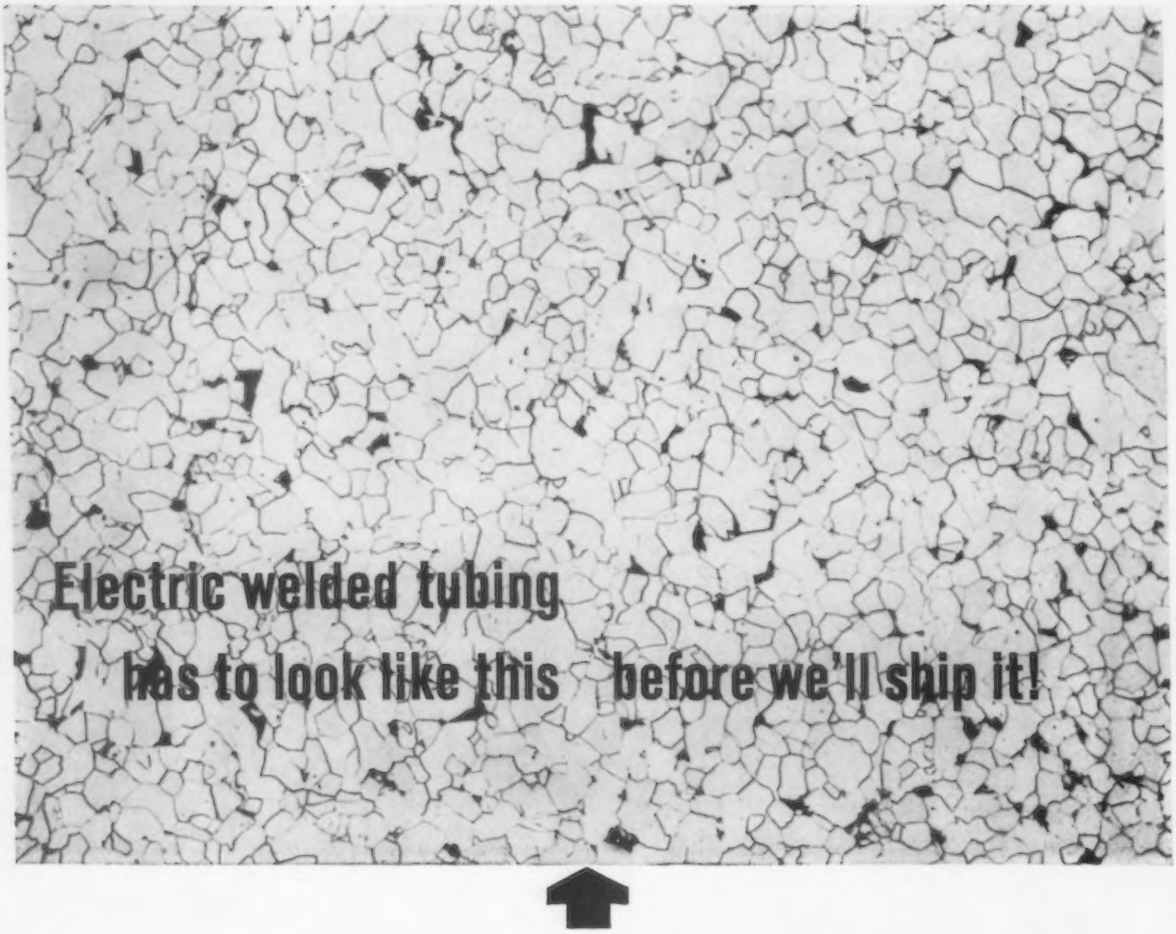

In this photomicrograph of a section of USS National Electric Resistance Welded Steel Pressure Tube the weld section runs right down through the center of the picture above the arrow. The consistency of structure between the weld area and the rest of the tube shows that USS National Welded Pressure Tubes have an important attribute—dependability.

Pressure tubes must be dependable. In the fabrication of heat transfer equipment—boilers, heat exchangers, condensers, superheaters and economizers, it is imperative that each tube be dependable, the entire installation is only as reliable as the weakest tube.

At National Tube we use metallographic examination, non-destructive ultrasonic testing, hydrostatic testing and thorough visual inspection to insure consistent dependability.

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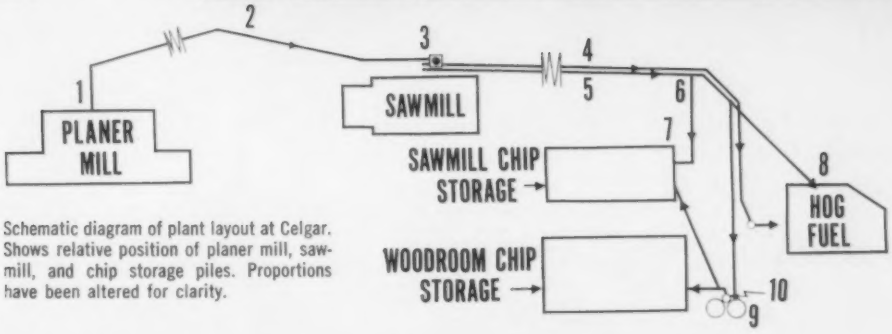
RADER at CELGAR

1. Blower and feeder at planer mill.
2. Pneumatic line from planer mill to surge bin at sawmill. Capacity 43 tons per hour. Length 1700 ft.
3. Two blowers and feeders at sawmill.
4. Pneumatic line for sawmill waste and planer waste. Capacity 70 tons per hour. Length 2200 feet.
5. Pneumatic line for wood chips. Capacity 60 tons per tour. Length 2300 feet.
6. Three-way automatic valve diverting chips to:
7. Sawmill chip storage.
8. Hog fuel storage.
9. Silo at pulp mill.
10. Blower and feeder at pulp mill sending chips to sawmill chip storage, woodroom chip storage and chip silos.



Schematic diagram of plant layout at Celgar. Shows relative position of planer mill, sawmill, and chip storage piles. Proportions have been altered for clarity.

Flexibility Is Keynote of Rader Installation at Celgar

A complex Rader pneumatic installation at the pulp mill and new sawmill of Celgar Limited at Castlegar, B. C., provides a continuous flow of chips and hog fuel over considerable distances, to several destinations, and with a minimum of human attention.

Planer waste is blown from the planer mill to a surge bin at the sawmill, which also receives the sawmill waste; from there the material is blown to the pulp mill's hog fuel storage.

Chips are carried on a second line from the sawmill to a three-way valve near the pulp mill. One discharge line leads to sawmill chip storage; the second leads to storage silos at the pulp mill, while the third leads to the hog fuel storage pile.

The systems described above have just been completed. Another system at the pulp mill, built earlier, blows chips either to the silos, or to the sawmill chip or woodroom chip storage piles.

Two other independent Rader systems at Celgar perform special missions. One handles knots and reject materials, which are blown to a chip bin for re-use, or to a fuel storage pile; another unloads limestone by suction from rail cars and transports it to a storage silo.

* * *

Rader engineers can custom-design pneumatic conveying systems for any pattern of chip flow, and for moving many other materials. Write or phone for information.

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RADER PNEUMATICS

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FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

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Groundwood	$82.50/ 90.00	$82.50/ 90.00	$90.00/ —	$90.00/ —	$90.00/ —
Bleached Gw'd.	97.50/100.00	97.50/100.00			
Kraft, Blchd.	‡140.00/150.00	‡140.00/150.00	150.00/ —	150.00/ —	150.00/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/140.00				
Kraft, Unbl.	117.50/125.00	125.00/ —	125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡135.00/140.00	‡135.00/140.00	140.00/ —	140.00/ —	140.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	125.00/ —	125.00/ —	125.00/ —	125.00/ —	125.00/ —
Sulphite, Unb'l. Gl'sn.		140.00/ —	134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS PER CWT

WEEK ENDED SEPTEMBER 26

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	$8.50/8.25	n.a.	n.a.	n.a.
2	8.25/7.75	n.a.	n.a.	$7.50/ —
3	7.75/7.25	$7.50/7.25	$7.50/7.00	7.00/6.75
4	7.25/6.75	7.00/6.75	6.50/6.25	6.50/6.00
5	6.75/6.25	6.50/6.25	6.00/5.50	5.50/5.25
6	6.25/5.75	6.00/5.75	5.25/5.00	5.00/4.75
7	5.75/5.00	5.25/5.00	4.75/4.00	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	October 2	October 2	October	October
No. 1 Mixed Paper	$ 10.00/ 12.00	7.00/ 10.00	6.00/ —	12.00/ —
No. 1 News	15.00/ 16.00	11.00/ 14.00	18.00/ —	16.00/ —
Overissue News (Lg. size)	12.00/ 14.00	12.00/ 14.00	23.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	10.00/ 12.00	11.00/ —	13.00/ —
Old Corrugated Containers	21.00/ 22.00	18.00/ 18.50	22.00/ —	16.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	33.00/ —	50.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	32.50/ 35.00	35.00/ —	27.50/ —
(Semi-chem. medium)	45.00/ —	40.00/ 45.00	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 75.00	47.50/ —	37.50/ 40.00
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	35.00/ —
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	45.00/ 47.50
No. 1 Groundwood Shvs.	25.00/ 30.00	20.00/ 25.00	17.00/ —	25.00/ —
White Newsblanks	47.50/ 50.00	30.00/ 40.00	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	55.00/ 65.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	— / —
Hd. White Shvs.	80.00/ 85.00	80.00/ 90.00	75.00/ —	80.00/ —
Hd. White Env. Cuts	90.00/ 95.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	47.50/ 50.00	52.50/ 55.00	47.50/ —	35.00/ —
Manila Tab. Cards	67.50/ 70.00	65.00/ 70.00	70.00/ —	75.00/ —
No. 1 Col. Ledger	32.50/ 35.00	32.50/ 35.00	42.50/ —	23.00/ —
White Ledger	47.50/ 50.00	50.00/ 55.00	50.00/ —	40.00/ 45.00
Mixed Book & Mag.†	— / —	— / —	10.50/ —	/ —
No. 1 Books‡	15.00/ 17.50	18.00/ 22.00	27.50/ —	8.00/ 12.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

NEW EQUIPMENT & SUPPLIES

Gas Burner Delivers High Infra-Red Drying To Web

An infra-red gas burner, designated as type "K" has just been announced by Red-Ray Manufacturing Co., Inc., Cliffside Park, N. J. Laboratory and field installations have indicated a higher conversion ratio of fuel to infra-red than with any other commercially available infra-red gas burner. Thus, a much greater efficiency and effectiveness is possible using the type "K" burner.

The type "K" burner is designed to produce the major portion of its radiation in the far infra-red wavelengths above 2.7 microns. The burner is manufactured in 2½, 4½ and 7 inch lengths, which can be mounted end-to-end on a common manifold, providing continuous heat radiators of from 2½ inches to 100

feet or more. Width of the burner is 6⅝ inches. The burner is available with profile adjustment of fuel input for each section, to permit profiling of heat output across the full length of the burner to adjust for varying heat requirements across the widths of web.

All metal parts of the burner are heat resistant alloys. Virtually flameless in operation, the burner has throttling capabilities of better than 10 to 1. Red-Ray Manufacturing Co., Inc., 318 Cliff Lane, Cliffside Park, N. J.

Polyethylene Emulsion Shows Promise in Coating

A polyethylene emulsion which is reported to show considerable promise in the coating of paper and board has recently been developed by Valchem, and is now in production at the firm's Langley, S. C., plant.

Designated as Valsof PE-45, the product is a white viscous emulsion, non-ionic in nature and readily dispersible in water. Indefinitely stable in storage, it is compatible with alkaline, neutral and acidic compounds as well as with resins, starches and gums. It has a pH of 7.7 total solids content of 45 per cent, polyethylene solids content of 35 per cent and is said to be absolutely non-yellowing.

For further information on Valsof PE-45 contact Valchem, the chemical division of United Merchants & Manufacturers, Inc., 1407 Broadway, New York 18, N. Y.

Tapered Plugs for Valves are Plastic Coated

A tapered plug valve design utilizing a high lubricity plastic coating that is said to substantially reduce turning and provides lifetime maintenance-free operation has been an-

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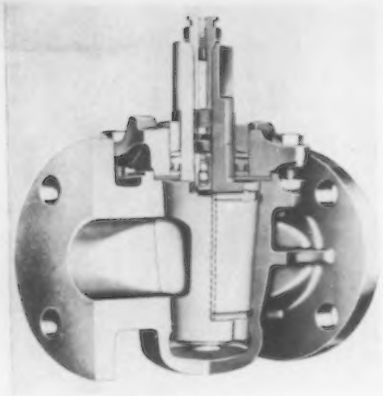


nounced by Rockwell Manufacturing Co.

The valves—known as Rockwell Permaturn valves — have a high lubricity plug coating of the order of 0.0005-inch permanently applied to the metal surfaces of the tapered plugs. For low pressure Permaturn valves the coating is Teflon, a polyfluoride thermoplastic with an extremely high softening point. For high pressure services Permaturn valves are coated with phosphate-molybdenum disulfide. Both coatings are permanently bonded to the metal surfaces of the tapered plugs.

Another feature of the values is a fixed adjustment assembly used on low pressure valves to maintain a constant tight seal and to facilitate uniform turning ease. The assembly is pre-set at the factory and requires no further adjustment or attention.

A third feature is designed for valves on extreme high pressure services. This consists of a threadless stem that results in a reduction of the high operating torques of conventional high pressure valves.

Coatings on Permaturn valve plugs have substantially reduced operating torques due largely to a tenfold reduction in frictional coefficient, say Rockwell. Metal-to-metal contact is eliminated this making it virtually impossible for the Permaturn valve to stick or freeze in service.

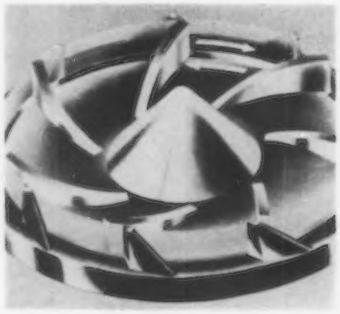
Rockwell Permaturn valves are available in ¼ to 36-inch sizes in all standard pressure ratings. For pressures up to 1000 p.s.i., Permaturn is made in standard design; for higher pressures up to 10,000 p.s.i., the inverted Hypreseal design is recommended. They are available in cast semi-steel; carbon, alloy and stainless steels; and non-ferrous materials. They are also available in forged steel designs for extreme high pressure services. Conventional plug openings are supplemented by V- and diamond-port designs, for precise throttling operations and full-bore round openings. For more information, contact Rockwell Manufacturing Co., Meter and Valve Division, 400 North Lexington Ave., Pittsburgh 8, Pa.

Cuts Defibering Time And Energy Consumption In Half

The Emerson Manufacturing Co. Division of John W. Bolton & Sons, Inc. has just introduced the Dualator, a machine that is claimed to defiber pulps at least twice as fast—with only half the energy consumption. Designed and developed by the Pulp and Paper Research Centre, Inc., the Dualator has been field-proved during a year of continuous, full scale, mill operation.

The Dualator's design incorporates two, contra-rotating, coaxially-mounted rotors, both of which are driven by a single motor operating through a specially designed right angle drive unit located beneath the cylindrically shaped tub. Streams of stock emanating from the inner rotor, moving counter-clockwise, pass directly into the path of the vanes of the outer rotor, moving clock-wise. This abrupt reversal in direction at the interfacial speed of 6,000 f.p.m. produces tremendous hydraulic shear forces. Stock is literally ripped to shreads as it moves repeatedly across the narrow gap between the two rotors.

The flow pattern created by the interaction of the two rotors and the cylindrical shape of the tub is unique.



Stock flows radially outward from the rotors to the side of the tub, then upward along the side wall, radially back to the center and down again to the rotors. The circulation is designed to be relatively slow and positively controlled. Energy that would otherwise be dissipated in unnecessary circulation is said to be converted into useful defibering action. Emerson Manufacturing Co. Division, John W. Bolton & Sons, Inc., Lawrence, Mass.

Pipeline Consistency Regulator Self-Cleaning

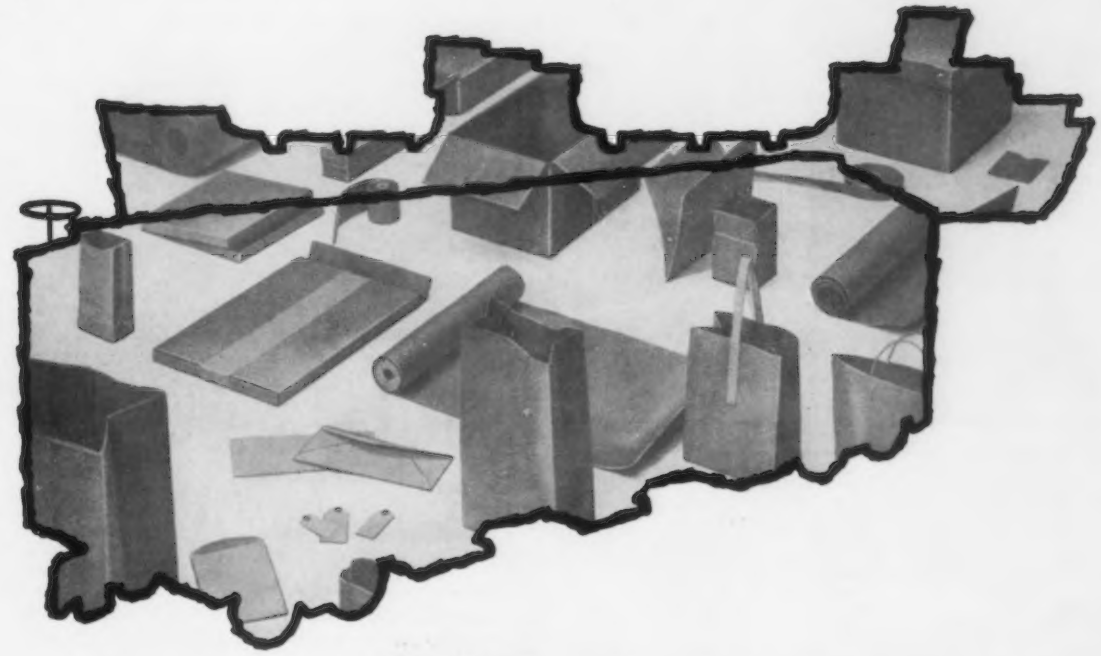
The latest addition to the DeZurik line of consistency regulators is the compact, self-cleaning model. The

regulator consists of a rotating self-cleaning sensing element, suspended in a regulating chamber, driven by a vertical motor. With each slight change in the incoming consistency of stock there is a corresponding change in the torque required to rotate the sensing element. This torque is measured by means of an extremely sensitive pneumatic force balance transmitter. Any slight change in torque is expressed as a change of output air pressure from the transmitter to the controller-recorder. The controller-recorder readjusts the position of the pneumatically actuated dilution valve to correct the volume of water required to maintain the stock at constant consistency.

The regulator requires little more space than the pipe itself. The motor-driven sensing element is said to eliminate downtime due to plugging, even stringy stocks are handled easily and accurately. It is claimed that consistency is controlled to within ±.1 per cent of desired consistency over a wide range of flows. For complete details write to Dezurik Corp., Sartell, Minn.

WEST END

advance planning OF ECONOMICAL SALT CAKE TRANSPORT ANTICIPATES INDUSTRY'S GROWING NEEDS



WEST END program of utilizing economical water transport and new Jumbo hopper cars with 60% additional capacity enables West End to move salt cake at great distances economically. With a vast natural raw material supply and large, expanding production capacity, West End is solidly qualified as a major supplier to handle the complete requirements of its customers dependably, economically and efficiently within a wide geographical area.

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Illustrated is "Baler 85R" with 2 roll stands for duplex S.O.S. baler bags.

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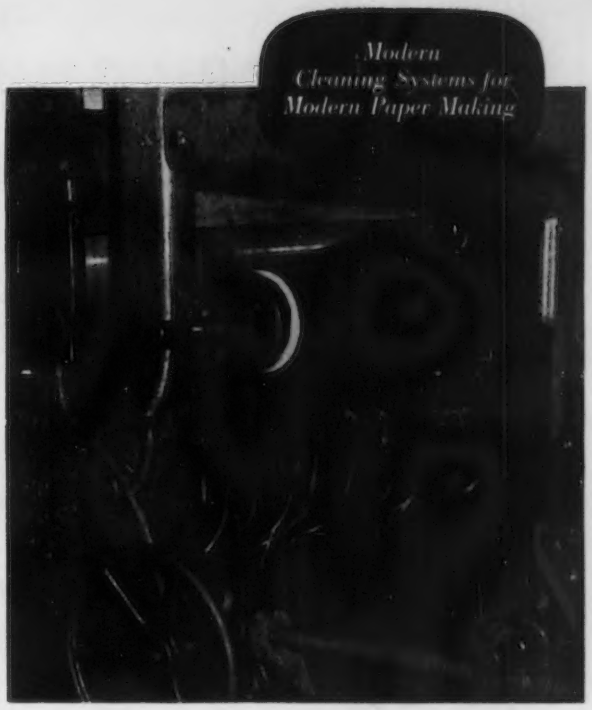

How to prolong felt life without downtime

Excessive downtime often makes washing felts more costly than buying new ones. An Oakite cleaning system solves the problem. It keeps felts in top form—while they're at work!

How? A permanent shower system is installed over the felt. When soils clog felt, a solution of a recommended Oakite felt washing compound is sprayed on, loosening soil, lifting the nap. Clear water rinsing flushes away dirt and solution residues. Felts are left clean, soft and full-napped. They last longer . . . paper is kept free of foreign matter . . . there's no lost time.

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Client company thinks basically in terms of patentable applications and products—and liberally rewards its R. & D. people for development of saleable items. Accordingly, this position offers tempting financial potentials to a creative-minded paper chemist capable of developing commercially feasible applications of chemicals to flat, flexible materials.

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1—60" 5 Color Gravure Press
1—48" 6-color Heinrich 4 Flexo 2 Gravure
1—42½" 5-color Staude Gravure Press
1—42" 6 color Heinrich Jet Jr.
1—42" 4-color Hudson Sharp Flexo Press
1—42" 3 color Manhasset Press—3 mos. old
2—35" 2-color Bagprint Flexo Tailprinters
1—33" 6-color Modern Clipper Flexo Press
1—33" 4-color Wolverine Hydro-Printer
1—31½ 4 color Heinrich-Cottrell Flexo
1—31" 4 color Wolverine Flexo press
1—31" 4-color PCM Co's Rotary Oil Ink
1—30" 6-color Kidder Flexo
1—30" 6-color Kidder celloprinter
1—30" 4 color H.S. Flexo Press
2—30" Henschel C.I. Flexo Presses for Poly
1—28" 2 color Champlain Roto Gravure Press
1—26" 3-color gravure press
1—24" Kidder 4 color Film Printer
1—24" 5-color Kidder Celloprinter
1—24" Kidder 4-color flexo
1—24" 4-color Kohlbach Flexo Press with Stanford Web Guide and Tension Controls
1—22½" 3-color Chambon Cup Press
1—22" 4 color Lee Flexo

CAMACHINES

1—82" Type 12
1—72" 10-10A
1—42 - 52 - 62 Type 6
1—62"—32" 26-3A Duplex
1—52" 24-7 Duplex
1—50" 28-3D Duplex

OTHER SLITTERS

1—92" "BA" Langstons
1—60" Inman, shear cut
1—52" Meisel (Shear Cut)
1—40" Kidder SH 40" rewind, shear cut
2—40" Beck Razor Blade slitter
1—40" & 1—52" Fales Model "B"
1—24" 1—30", 1—36" & 1—40" Kidder S.L. & 1—36" SLN shear cut

POWER PAPER CUTTERS

SEYBOLDS:
84"—50"—40" Precisions
56"-Dayton, 44"-Dexter, 44"-C&P
44"—10Z & 50"—10Z
44"-Mod. "CF"
75"-Oswego, 40"-Mod. "CF", 38"-Oswego
50"-C&P, 32"-Oswego
57"-Oswego, 50"-Dexter, 32"-3Y

BAG MACHINES

1—#2 Lockport F & S Plus Range 3—12 lbs.
1—PO2 Roto Bag Machine
2—Bagprint 8-10 F&S Bag machine
1—Hansel Bag Machine—3 color printer
1—Simplex 7-24 Pouch Machine, E/eye
1—Multipath Bag Machine — 4 Color Holweg Printer
1—Model 4 Potdevin Sack Machine
1—#101 Potdevin S.O.S.
1—#26 Matador F&S Bag Machine
2—Roto Model "C"

MISCELLANEOUS MACHINES

1—10" x 10", 1—13" x 13½" & 1—16" x 17" H/S 3 deck Napkin Machines
1—56" Christensen Bronzer
1—24" International 2-P Waxer
2—42" Reverse Roll Coaters
4—Hayssen 4 & 6 Roll Wrappers
5—Hamblets 100-76-72-64-60 W/Layboy
1—80" Hamblet Duplex W/Layboy
1—55" Beck Model A-5
1—Potdevin Tin Tie Machine
1—Hudson Sharp Gift Wrap Folder
2—38" x 24" 4-Post Seybold Die Presses
2—Die Cutters—27" x 38"—30" x 44"
3—Sheridans 50 x 24 44 x 20 36 x 18
Embossers 48", 55" Waldron & 50" H.S.
1—60" x 35" Standard Die Press

0-9

FOR SALE

BEATERS

2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54″ x 48″, cast iron tubs.

CALENDER STACKS

1—3 roll 84″ face.
1—4 roll 72″ face (Extra heavy duty).
1—5 roll 86″ face.

CHIPPERS

1—96″ Murray 4 knife Chipper—anti-friction bearings.
1—84″ 10 knife Carthage Chipper. Anti-friction bearings, with motor.

COATERS

1—27″ High Solid Coater.
1—42″ Chapman Extrusion Type Coater.

COUCH ROLLS (RUBBER COVERED)

6—18″ diameter x 138″ face

CRUSHER & HAMMERMILL

1—Murray Chip Crusher.
1—Williams Hammermill.
1—Jeffrey Shredder.

CYLINDER MOLDS

5—36″ diameter x 75″ face, with couch rolls.
1—36″ diameter x 82″ face.
1—42″ diameter x 96″ face.
2—42″ diameter x 106″ face.
2—60″ diameter x 170″ face.

DRIVES

1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive).
1—#4 Reeves Drive.
2—Falk Drives, 20 H.P. & 160 H.P.
4—Falk Chest Agitator Drives, 10 H.P. ratio 140 to 1.

DRYERS

1—16″ diameter x 54″ face (steel).
1—28″ diameter x 84″ face.
1—28″ diameter x 48″ face.
4—28″ diameter x 40″ face.
18—28″ diameter x 76″ face, with frames, gears & bearings.
2—28″ diameter x 62″ face, with frames, gears & bearings.
2—30″ diameter x 128″ face, bronge, with frames, gears & necessary rolls to make up the unit.
1—36″ diameter x 44″ face.
4—36″ diameter x 76″ face.
11—36″ diameter x 84″ face.
14—48″ diameter x 48″ face with bearings.
2—48″ dia. x 52″ face with frames, gears, bearings.
2—48″ x 60″ face frames, gears & bearings.
1—48″ diameter x 108″ face.
29—48″ diameter x 109″ face, complete section
6—48″ diameter x 130″ face.

EMBOSSING CALENDERS

1—43″ 3-roll Embossing Calender.
1—48″ 2-roll Meadows Embossing Calender.
1—51½″ 3-roll Smoothing Calender.
1—52″ 3-roll Embossing Calender.
1—62″ 2-roll Embosser.
1—90″ 2-roll Smoothing Calender.

FILTERS

1—Oliver, 10 ft. face x 5½ ft. diameter.
1—Oliver, 8 ft. x 12 ft., rubber lined complete.
1—Oliver Filter, 8 ft. x 8 ft.
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS

1—12 Plate "Packer".
4—14 Plate IMPCO, bronze vats.

JORDANS

1—#1 Jones High Speed Jordan.
1—Jones Standard, new spare tackle, with 75 h.p. motor.
1—Noble & Wood Mammoth Jr., with spare plug.
1—Noble & Wood Baby Jordan, anti-friction bearings, with 20 h.p. motor.
1—#6 Miami, anti-friction bearings.

KNIFE GRINDER

1—70″ Seybold.

LABORATORY EQUIPMENT

1—Washer for 5 lb. Beater.
1—24″ Saveall, stainless steel.
1—20″ Fourdrinier Wet End & Press Section.
1—Noble & Wood Cycle Beater with motor & stand.
1—5 lb. Beater.
1—Williams Freeness Tester.
7—Mullen Testers, motorized & hand operated.
1—2 qt. Auto Clave. Stainless Steel.
1—27″ High Solid Coater.
1—Noble & Wood Baby Jordan, anti-friction bearings, with 20 h.p. motor.
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1—24″ diameter x 24″ face Stainless Steel Cooling Drum.

MISCELLANEOUS

1—Shartle Hydrafuge, 1000 g.p.m. (with motor).

MOTORS

4—25 h.p. Westinghouse, totally enclosed, ball bearing. 705 r.p.m.

PAPER MACHINE

1—110″ Fourdrinier Paper Machine

PRESSAFINER

1—7″ Pressafiner, stainless steel construction, New 1955, with new spare motor.

PRESS ROLLS

2—Chilled iron, chrome plated 9″ x 72″.
1—Chilled iron, chrome plated 10″ x 74″.

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1—Economy Fan Pump 6000 g.p.m., 20′ head, 50 h.p. motor.

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1—72″ Downingtown Reel, 2 bowl.
1—84″ 3 bowl revolving reel.
1—86″ 2 bowl reel.
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ROLLS

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1—#2A—50 Bird, copper vat.
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1—42″ Cameron Type 40-2.
2—50″ Cameron Type 6.
1—72″ Cameron Type 46-W.
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84″ Quick change slitting device shear cut, complete.

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1—7 Roll 70″ face.

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1—rubber covered roll, 18" dia., 105" face.
1—rubber covered roll, 19" dia., 130" face.
1—rubber covered roll, 16" dia., 123" face.
1—rubber covered roll, 21" dia., 126" face.
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1—rubber covered roll, 20" dia., 96" face.
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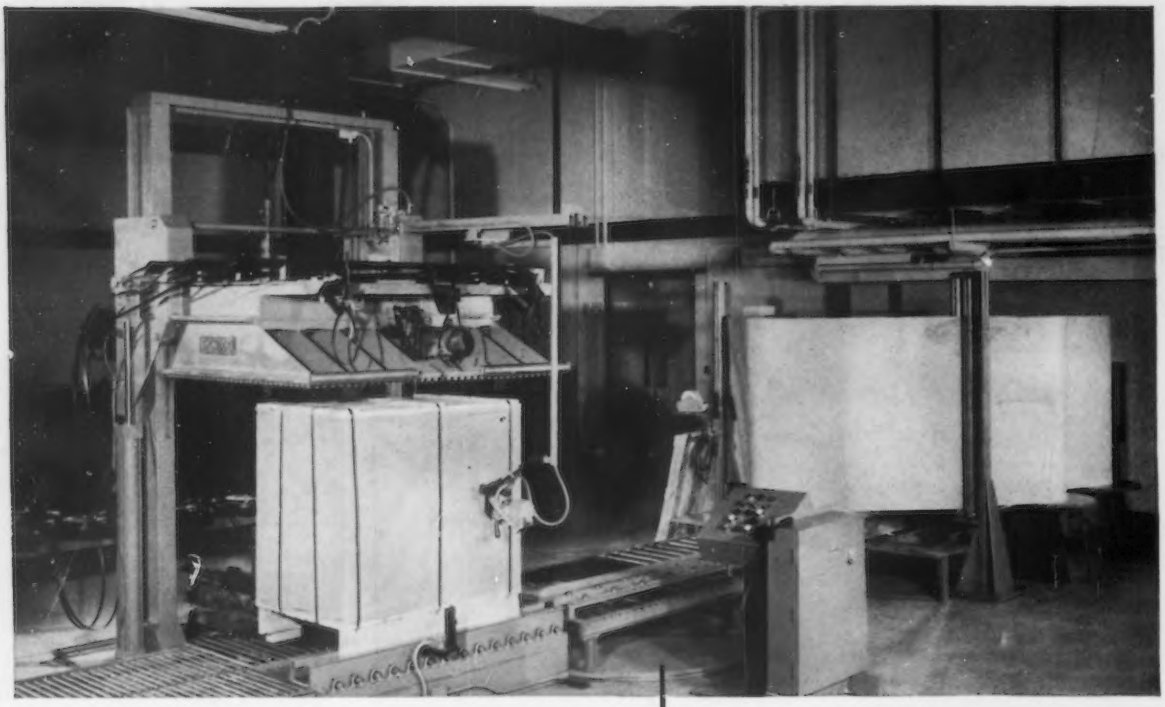

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